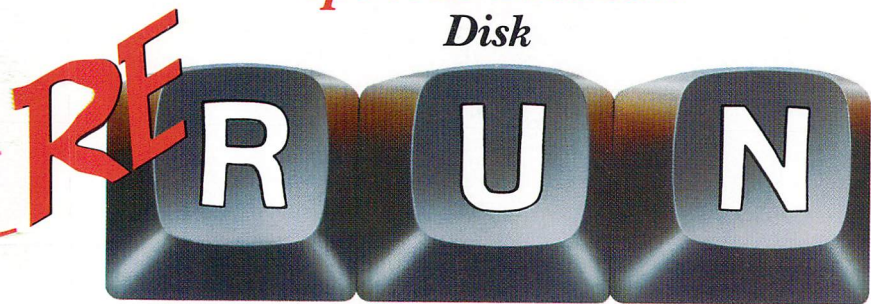


Special Edition

Disk



Productivity Pak

RUN's Most Productive Programs

For the C-64 and C-128 (in 64 mode only)

DATAFILE ■ DEMAIL ■
DFREPORT ■ DFPRINT
■ DFCALC ■ RUN IT W
RITE ■ RUNTERM ■ SC
REEN PRINT ■ SCREEN
PRINT 2 ■ SCREEN PRI
NT 3 ■ FINANCE AID ■
DISK MASTER ■ BASIC
4.5 ■ GRAPHMAKER ■

Introduction

Welcome to RUN's Productivity Pak

Here we go with our second special issue of ReRUN for 1985. Meet the Productivity Pak, a collection of 15 of *RUN*'s best applications and utilities for your C-64 and C-128 (in 64 mode). You will recognize some of these programs, but there are several brand new applications that have never before appeared in print. (Titles in capitals are the filenames you must type in to load the programs.)

To get started, we have the latest version of DATAFILE (version 3.3). This exceptional database has been highly acclaimed by *RUN* readers all around the world, and this version has many enhancements to make it even better than the original.

Two subprograms, DFMAIL and DFREPORT, let you print out customized mailing labels and reports using the files created by Datafile. DFPRINT will load your files and quickly print them out.

We also have the pleasure of bringing you DFCALC, an application that integrates with Data-

file and produces spreadsheet-like reports.

To increase your personal productivity, we have included a word processor. RUN IT WRITE was written in Basic and compiled to make it run as fast as a machine language program. With this word processor, you can type out personal correspondence and print it with your own customized margin settings, tabs and line spacing. You can even link files for long documents that exceed the 24 screen-page limit.

Telecommunications is rapidly becoming a top application in the home and in business. We are pleased to have a professional-quality smart terminal in this ReRUN. RUNTERM is written entirely in machine language and gives you the opportunity to log onto the major on-line networks such as CompuServe, Delphi and The Source. You can also contact bulletin boards using Commodore or standard ASCII. RUNTERM provides for XModem uploading and down-

loading and will be a big hit with telecommunicators.

For those occasions when you need a quick printout of your screen display, whether it be text, low-resolution or high-resolution, SCREEN PRINT will fit your needs perfectly. SCREEN PRINT 2 is provided for those of you with Gemini 10X printers, and SCREEN PRINT 3 is a convenient program for saving this printer utility to disk as a fast-loading machine language program.

For quick answers to your financial queries, we have FINANCE AID. This application will determine loan payments and investment calculations.

For programmers, we give you DISK MASTER and BASIC 4.5. DISK MASTER is an enhancement to our previously published program called "Disk Master Re-

visited," published in February 1984. With this disk utility, you can easily keep track of all the program files on your disks.

BASIC 4.5 was published in three parts and is now, for the first time, provided in its entirety. This version of Basic will give you many of the commands provided by the Plus/4 and even the C-128.

Lastly, for enhancing your business reports and keeping track of all your many appointments, we have GRAPHMAKER and MEMO, two previously published small-business applications.

No one's *forcing* you to get to work, but the Productivity Pak *is* waiting.

MARGARET MORABITO
Technical Manager
RUN Magazine

Productivity Pak Directory

1	DATAFILE
1	DFMAIL*
1	DFREPORT*
14	DFPRINT
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62	GRAPHMAKER
65	MEMO

* DFMAIL and DFREPORT are subprograms loaded from DATAFILE. Do not load and run these two programs separately.

+ LOAD "BASIC 4.5",8,1. Then type SYS 64738 to activate the program.

Read instructions in the booklet for all programs before running them.

How to Load

DISK:

To load any of the programs, type:

LOAD "program name",8

then press the RETURN key.

The disk drive should whirl while the screen prints SEARCHING FOR (program name). The screen should then print LOADING and then finally READY, with the flashing cursor beneath. Type RUN and press the RETURN key. The program will then begin.

NOTES:

You should use the entire program name exactly as listed to avoid loading programs that have similar titles.

Before loading a program, *always* refer to the article in the booklet for special instructions.

Be sure your C-128 is in C-64 mode before attempting to load these programs.

Datafile

If you want to computerize all those records you have to keep track of, here's a dandy database program that will give you information in a jiffy.

By Mike Konshak

RUN It Right

*C-64; C-128 (in C-64 mode); 1541 disk drive
Any ASCII or Commodore printer*

Datafile is a memory-based, multiple-program database system for the Commodore 64. It utilizes any ASCII or Commodore printer and sequential files on a 1541 disk drive.

Datafile allows you to create your own database, choosing the number and length of fields, as well as their titles. The program will calculate the maximum number of records that can be retained in memory according to the criteria you established. After you've created a database and added records, you can perform standard operations on the data and save to disk or print out the results in various formats.

The main program can load other subprograms from the disk, removing itself from memory to allow room for the new

program in the same memory cells. The new program will then be able to use the same variable values and data that were set and retained during the operation of the first program.

DATAFILE INSTRUCTIONS

You begin by typing `LOAD "DATAFILE",8 <RETURN>`. When the disk drive stops running, type `RUN <RETURN>`.

The screen then displays the main menu. You can choose any of the options by pressing the key that represents the first letter of the option, although Create or Read should be the first one chosen when you begin. The program will jump to the respective subroutine without your having to press the return key. When a particular subroutine has completed its chores, it will always return to this menu.

It's a good idea to create a small database at first, in order

to become familiar with Datafile. Don't put too much effort into the first go-around. Experiment a bit to check out the program's capabilities. The following is a step-by-step description of what to expect when you select options from the main menu.

CREATE NEW FILE

Try to maximize the available memory space by keeping the number of fields and the lengths of the names to a minimum. The lengths of the fields should always be restricted to less than 75 characters.

ADD RECORD TO CURRENT FILE

After pressing A on the main menu, the screen displays:

PRESS THE [RETURN] KEY AFTER
EACH ENTRY
PRESS [RETURN] WITHOUT ANY EN-
TRY TO STOP

[RECORD NUMBER 1]

Now type in about ten records so you'll have something to play with. If you try to enter into any field more characters than that field was initialized for, you'll receive an error message. You will notice the dummy character behind each Input statement. This is used to reserve the space while the computer is writing the sequential file to the disk.

You stop adding records by pressing the return key without

making an entry in the first field. This doesn't work on succeeding fields because it's assumed there's some data there that needs to be saved. This also allows you to fill in blanks later if information is unknown at the time.

It's important to note that Datafile uses Input statements that do not allow the use of quotation marks, commas, semicolons or colons as part of data in the fields. All other alphanumeric characters are acceptable.

MODIFY RECORD IN CURRENT FILE

If you press M, you will see:

MODIFY WHICH RECORD? ENTER
[#]OR [A]LL
?

If you want to change just one particular record, enter the number of the record (try 1), then press the return key. Pressing A will display all the records in the file, one at a time. Pressing 1 brings this to the screen:

TO MODIFY RECORD NUMBER 1,
MAKE CHANGES AS EACH FIELD
IS DISPLAYED, THEN [RETURN]

As you can see, this format is similar to the Add operation, except that the data is preprinted for you on the screen.

DELETE RECORD IN CURRENT FILE

Pressing D gives you:

DELETE WHICH RECORD? ENTER [#]
OR [A]LL
?

Don't be afraid to press A on this one. Records will not be deleted unless you've given the go-ahead to do so first. For this example, enter 1, then press the return key, which displays:

TO DELETE RECORD NUMBER 1,
PRESS [SHIFT] [D], PRESS [SPACE
BAR] TO ADVANCE

The entire record is displayed so that you'll be aware of the total contents of the record before you try to delete it. If you want to delete the record, hold the shift key down while you press the D key.

The total number of records in the file will be decreased by one, and all the records after the one you deleted will be renumbered accordingly. If you decide not to delete the record after all, just press the space bar and it will advance you to the next record or bring you back to the main menu. Remember to save your revised file.

READ OLD FILE FROM DISK

This utility is normally performed at the start of Datafile to load a previously stored file. The program prompts with:

ENTER NAME OF FILE TO BE LOADED
?

Type in the name of the datafile and press the return key. The file will load and you'll return to the main program. If the return key is pressed without a file-

name present, the program will also exit safely back to the main program.

PRINT RECORDS BY SELECTION

This utility advances you to another menu, designed to load subprograms that will actually perform the printing operations. If no records are present in memory, you'll be directed back to the main menu.

[PRINTER MAIN MENU]

PRINT RECORDS USING:

[R]EPORTS AND LISTS

[M]AILING LABELS

[U]SER DEFINED SUBPROGRAM

[E]XIT TO MAIN MENU

[PRESS THE APPROPRIATE KEY]

E returns the program to the main menu, R loads up DFReport and M will load DFMail. Pressing U results in:

ENTER NAME OF SUBPROGRAM
?

Here you can load up programs that might perform other operations on your data that Datafile does not provide. Not entering any filename at all will get you back to the printer menu.

The User-Defined Subprogram serves to load a program that you might write to enhance your particular datafile. One example might be a program that adds up all the numeric values in one field of a datafile. This could, for

example, be a field that holds the current value for household inventory items, thus giving you quickly the total value for insurance purposes.

Many variations are possible. You will have to study the program listings to find the variable names required to get the correct data. More on this later.

VIEW FILE ON SCREEN

Entering this routine displays the first record in the datafile with the following commands below the record:

[RECORD NUMBER 1] IN FILE (name of datafile)

(Record data)

[N]EXT, [L]AST, [J]UMP, [F]IND, [E]XIT

Pressing N causes the screen to step to the next record. You can walk through your entire datafile, one record at a time, up to your end record with this command. L steps you backwards, decrementing each record number by one, to previous records.

J allows you to jump directly to a particular record number, instead of stepping one by one. You'll be asked for the record number; then enter your choice and press the return key.

F is a search function that allows you to find record fields that share common items or data. The screen displays a list of the field names of the current datafile, then asks you

to enter the number of the field you wish to search. The field name is then displayed and you're asked to ENTER [COMMON ITEM]. Enter the string of text that is to be searched and press the return key.

For example, if you chose a field that was named First Name, you might enter the string JIM. The computer will search out all records that begin with JIM in the First Name field.

Not only would JIM come up, but JIMMY would also be displayed because it begins with JIM. Entering A would cause a search of all strings in a particular field that began with A, and so on. Press N to continue to the next record in the search.

SORT RECORDS BY FIELD

The field names will be displayed, each preceded by a number, and the list will be followed by a prompt:

WHICH FIELD IS TO BE SORTED?

Entering one of the numbers shown, followed by RETURN, will send the computer off to sort out that particular field in ascending alphanumerical order. The computer will tell you how it's doing during the process by flashing the number of the record it's currently working on.

Datafile uses a Shell-Metzler sort routine. All the data items entered into Datafile are stored as string values in the arrays,

whether the value is in the form of alphabetical characters or numbers. Therefore, here is a point to consider in the sorting of string variables that are numbers: The first number encountered will be considered the first character used for comparing against another number.

(Note: Any desired sorting should be done before advancing to the Print subprograms. There is no facility for sorting the records in those programs.)

WRITE NEW FILE TO DISK

Entering this routine produces this display:

```
ENTER NAME OF CURRENT FILE TO
BE SAVED (12 CHARACTERS MAX).
ANY EXISTING FILE WITH THE SAME
NAME WILL BE SCRATCHED
```

?

As mentioned previously, Datafile adds special character codes to the beginning of your datafiles and format files. This ensures that programs will load their own files and allow the multiple use of the same filenames.

Writing your current datafile onto the disk invokes the following operations:

- Datafile Mail List was read into memory from the disk. It appears on the disk directory as DFJ MAIL LIST.

- The current file has been updated and the file is entered, for

writing the file to the disk, exactly as the name that it was read from: MAIL LIST.

- The program will change DFJ MAIL LIST, the name of the last file on the directory, to DFJ MAIL LIS!OLD. Notice that the last four characters in the 16-character filename will be replaced with !OLD.

- The current updated file will then be saved as DFJ MAIL LIST.

- If DFJ MAIL LIS!OLD was already on the disk directory, that file would be scratched before the MAIL LIST file was renamed.

In essence, Datafile always keeps your current datafile as well as your last datafile. This gives you the opportunity to recapture the last version of your data. If you desire to load the last version from the Read Old File on the menu, enter MAIL LIS!OLD. Do *not* include on the directory the special characters shown at the beginning of the filename.

If for some reason you desire to keep the !OLD files, you must give them a new name to keep from scratching them later. (Remember, do not exceed 12 characters.)

DISK COMMANDS

Pressing @ sends you to the disk commands menu. Pressing E sends you back to the main

menu. The other options are described as follows:

FORMAT A DISK

This feature allows you to format a blank disk for later use in saving files. Make sure that the disk you have in the drive is the disk that you want formatted, because this will erase your disk completely!

[DISK NAME,ID]?

Insert a disk into the disk drive. Enter an up to 16-character header for the disk name, followed by a comma , and then a 2-character disk I.D., followed by RETURN. (For example: DATAFILE FILES,D2.) The drive will commence to format the disk (takes approximately 3½ minutes). When it is finished, you will be returned to the menu.

DISK DIRECTORY

Pressing the shifted 4 key will list the directory of the disk currently in the drive. Press any key to get back to the menu.

SCRATCH A SEQUENTIAL FILE

This feature will scratch any sequential file located on the disk. When prompted, you must enter the filename *exactly* as it appears on the directory. For example, the Datafile file called Mail List is shown on the directory as DF] Mail List, and the DFMail format file called Mail List appears as ML] MAIL LIST. Enter every

character as shown and press the return key.

This routine will rename a sequential file. Enter the old name exactly as shown on the directory. Enter the new name when prompted. Remember to include the special characters that preceded the old name; otherwise, Datafile will not recognize the newly named file.

DFMAIL INSTRUCTIONS

You load DFMail using the print options found in Datafile. It is assumed that a datafile is currently held in memory; otherwise there will be nothing to print.

DFMail uses "One-up" tractor-feed labels and is adaptable to any length or width of label. The standard size labels (with 5 rows of text) are the most popular and most easily obtainable, with the large size (8 rows) being next in line. Press either the S or L key. If you have labels of a non-standard size, choose the O (other) option instead.

OTHER is adaptable to let you choose the number of rows, from 1 to ?, and the number of characters can be expanded from the standard 32 up to 136. Putting your printer into compressed mode will allow more characters on labels of standard length.

Some labels that fit the non-tractor-feed printers give you two across the page. These labels, which are four inches long, are

used if the printer has only pin feed (Okidata and Epson, for example). These longer labels can accommodate 38 characters per row, if desired. DFMail, however, will only print on the leftmost labels. You can, of course, feed the labels in backwards to use the other side.

If <O> is pressed, the screen will display:

```
ENTER NUMBER OF ROWS ON LABEL?
ENTER NUMBER OF CHARACTERS
PER ROW?
```

Enter your modifications when prompted. The next screen shows the main menu for the mailing labels program.

[MAILING LABELS MENU]

```
[P]RE-DEFINED FORMAT OR
[D]EFINE NEW FORMAT
[C]HANGE LABEL SIZE
```

```
[E]XIT TO MAIN PROGRAM OR
[R]EPORT/LISTING PROGRAM
[Q]UIT PROGRAM
```

Pressing the E key reloads Datafile into memory without disturbing the record data. Q closes the files and terminates the entire program. Ending here wipes out all data. Do this only if you have not updated any records and if you have your current datafile stored on disk. You will be warned if you have not done so.

R loads the subprogram DFReport directly, instead of hav-

ing to go back to the Datafile program. C sends you back to the first screen that you encountered when you entered DFMail. This allows you to alter the size of your labels and printouts.

FORMATTING YOUR LABELS

Formatting of printer outputs may be the most confusing aspect of a database. You must be able to visualize how you want the final result to appear.

Once you have formatted a label or report (when using DFReport), you'll be able to save your design for future recall. From then on, when you want to print your labels, you'll be able to breeze by the formatting routines.

Let's design a sample mailing label that will probably meet most of your needs. Before doing this, you must have a previously created datafile that's compatible with your label format. The datafile will have the following structure:

Name of datafile: MAIL LIST

Number of fields: 8

Field#	Field name	Field length
1	LAST NAME	15
2	FIRST NAME	10
3	CODE	5
4	STREET	32
5	CITY	23
6	STATE	2
7	ZIP	5
8	PHONE	12

Modifications to the above datafile might include a second address line (e.g., COMPANY NAME). The phone number is included in the datafile, but will not be printed on the labels. The field Code may be used for classifying the records (e.g., R = relatives, F = friends, B = business associates), or for an employee number, a professional title or an account number for business purposes.

DEFINE NEW FORMAT

Now that the datafile is defined, and assuming that records are present, let's return to where we left DFMail. Pressing D in the Mailing Labels menu results in this display, which will indicate, by rows and characters, which label size has been chosen:

[MAILING LIST FORMAT]

THIS FORMAT USES SINGLE ROW LABELS.

EACH LABEL CONTAINS UP TO 5 ROWS.

EACH ROW CAN CONSIST OF 1 TO 3 FIELDS.

IF THE LENGTH OF MULTIPLE ITEMS EXCEEDS 32 CHARACTERS, SOME DATA WILL BE CUT OFF.

[NUMBER OF ROWS?]

At this point, let's pause to discuss what your label will look like. Row 1 will include record fields 2, 1 and 3 (LAST NAME

+ FIRST NAME + CODE), in that order. Row 2 will only have record field 4 (STREET). Row 3 will consist of record fields 5, 6 and 7 (CITY + STATE + ZIP). Rows 4 and 5 will not be used.

The label shown on the screen is divided into 3 fields per row. These are *format* fields, not *record* fields. Try not to get them confused. Enter 3 for the NUMBER OF ROWS and press the return key.

CHOOSE WHICH FIELDS GO IN WHICH ROW

ENTER [0] IF ADDITIONAL FIELDS ARE NOT DESIRED.

1	LAST NAME	ROW 1
2	FIRST NAME	FIELD 1? 0
3	CODE	
4	STREET	
5	CITY	
6	STATE	
7	ZIP	
8	PHONE	

Field 1, in this case, refers to the first field or item of the first row. In this field we will place record field 2, which is displayed on the left of the screen. Respond to the prompts on the right of the screen as follows:

ROW 1	press the return key
FIELD 1? 2	after each entry
FIELD 2? 1	
FIELD 3? 3	
ROW 2	
FIELD 1? 4	
FIELD 2? 0	
FIELD 3? 0	

ROW 3
FIELD 1? 5
FIELD 2? 6
FIELD 3? 7

The screen will now display:

YOU WISH TO REVIEW YOUR FOR-
MAT AND/OR MAKE CORRECTIONS?
[Y] OR [N]

Pressing Y will repeat the last
screen, except that the record-
field numbers will appear after
the format-field prompts. Press N
to advance into the program.

[SAVE FORMAT] [Y] OR [N]? Y

SAVE UNDER WHAT FILE NAME?
? MAIL TEST

You will notice that the pro-
gram preprints the filename that
was determined when your da-
tafile was saved or loaded during
a disk operation. This links rec-
ord and format files together so
that you will not have to remem-
ber different names. At this point,
any format files with the name
Mail List will be scratched as this
new format is saved. Unlike the
datafiles, format files will not be
given a backup when a file of
the same name is resaved after
changes. Change the name of
the format file at this time if you
want to retain the old format, and
press the return key.

The program will then advance
to where the labels are aligned
in the printer. Jump there now if
you wish, because the next few
paragraphs will discuss the situ-

ation where the user loads in a
predefined format.

PREDEFINED FORMAT

After pressing P at the Mailing
Labels menu, the screen will
display:

LOAD FORMAT FROM WHAT FILE?
? MAIL TEST

The prompt should preprint the
last-used file name. If MAIL TEST
is the correct format file, press re-
turn. As soon as the file is loaded,
the program will display:

DO YOU WISH TO REVIEW YOUR
FORMAT AND/OR MAKE CORREC-
TIONS? [Y] OR [N]

This is the same question
asked when you first designed
the format. If you are not sure if
the format you loaded was the
correct one, you may check it at
this time. This is also a good
opportunity to make a slight
change for a one-of-a-kind job.
Press N. The screen will display:

SAVE FORMAT? [Y] OR [N]

This may seem repetitive, but
it allows you to save a changed
format, or to save the current one
under a new name or on a new
disk. Press N. The program will
next display:

INSERT SINGLE ROW TRACTOR FEED
LABELS
RUN TEST LABELS TO HELP POSI-
TION LABELS

PRESS [T]EST LABEL
[C]HOOSE RECORDS

Pressing T will print rows of asterisks. The number of rows and characters should reflect your label size and format. Position the labels in your printer so that the rows appear centered on the label. Once the labels are aligned, press C to advance to the Print Options menu, where you will choose the records to print.

PRINT OPTIONS MENU

[A]LL RECORDS IN FILE

[S]ELECT INDIVIDUAL RECORD

[F]IND RECORDS WITH COMMON FIELDS

[E]XIT TO MAIN MENU

[PRESS THE APPROPRIATE KEY]

At this time, you actually decide which records you want to print, and then begin printing. (If, at any time, you decide that you want to leave this section—before or after printing—press E to get back to the main menu.) The choices are as follows:

ALL RECORDS IN FILE

The printer will start printing from record number 1 until it has printed your entire datafile. Sit back with a cup of coffee if you have a large file.

SELECT INDIVIDUAL RECORD

This gives you the opportunity to print just one label of your choice. This assists you in making last minute corrections or

printing just a few records out of your datafile. The screen displays PRINT WHICH RECORD? Enter the record number, then press return. If you type in a number higher than the size of your datafile, you will receive an error message. You must print *something* to get back to the menu.

FIND RECORDS WITH COMMON FIELDS

This search routine operates identically to the one in the view option of the Datafile program. The screen will display all the field names in your datafile to help you search. The following list is from the datafile called MAIL LIST. For this example, we will search for all last names beginning with S.

FIND RECORDS WITH COMMON FIELDS

- 1 LAST NAME
- 2 FIRST NAME
- 3 CODE
- 4 STREET
- 5 CITY
- 6 STATE
- 7 ZIP
- 8 PHONE

WHICH FIELD IS TO BE SEARCHED?

1

ENTER [COMMON ITEM] (THE ENTIRE STRING IS NOT REQUIRED)

[LAST NAME] ? S

SEARCHING RECORD #

If you followed the above sequence, the # symbol will be an incrementing number that will stop when the program finds a record with a last-name field beginning with S. It will then print out that record and initiate a search for another. If you had previously sorted this file by last name, all the S's would be printed one after another. The program will continue searching until it runs out of records. It will then send you back to the print options menu.

If you had typed in SWY-KOWSKI for the last name, only those records that perfectly matched, or began with SWY-KOWSKI, would be printed.

For a business application, you could use this feature to group mail by zip code. It is also possible to print only those records that have a special code that was previously entered in the code field of the record.

DFREPORT INSTRUCTIONS

Just as with DFMail, you load DFReport using the print options in Datafile, and, again, it's assumed that a datafile is in memory; otherwise there is nothing to print.

The Report Printout menu functions like DFMail. Pressing E reloads Datafile back into memory for further updates without disturbing the record data. Q closes

the files and terminates the entire program. Ending here wipes out all data. Do this only if you have not updated any records and if you have your current datafile stored on disk. You will be warned if you fail to do so. M loads the program DFMail directly, without first having to load Datafile.

LIST RECORDS UNFORMATTED

This function is by far the simplest way to get a hard copy of your datafile. Pressing L results in:

[PRINT OPTIONS MENU]

[A]LL RECORDS IN FILE

[S]ELECT INDIVIDUAL RECORD

[F]IND RECORDS WITH COMMON FIELD

[E]XIT TO MAIN MENU

POSITION PAPER IN PRINTER AT TOP OF PAGE

[PRESS THE APPROPRIATE KEY]

This menu functions exactly as the one in DFMail, with one exception. Instead of centering your mailing label, you are required to advance your printer to the top of the next page. A record printed unformatted will have the record data printed in rows, which wastes considerable paper. Although this printout is quick-and-dirty, it can be cut out and pasted onto cards or filed in small cabinets or folders.

PRE-DEFINED FORMAT

Pressing P results in:

LOAD FORMAT FROM WHAT FILE ?
MAIL LIST

Enter the datafile format to be used for printing your report, then press the return key. The name of the last datafile loaded in Datafile will be preprinted for you after the prompt. Change the name by overstriking. The screen then displays:

DO YOU WISH TO REVIEW YOUR
FORMAT AND/OR MAKE CORREC-
TIONS [Y] OR [N]?

Pressing Y sends you through the Define New Format routine. The current values of your format will be displayed. Alter by overstriking the values and pressing return. Also press return to accept the values. Pressing N gives:

SAVE FORMAT [Y] OR [N]?


If you made any changes, go ahead and resave your new format by pressing Y. Keeping the same filename will scratch the old format. After N, you will progress to the Print Options menu, previously described.

DEFINE NEW FORMAT

This routine creates a custom form based on your design. It would be a good idea to sketch out on a sheet of graph paper or programmer's pad what you want your report to look like. You will need to decide the following:

1. How many characters wide will the report be? Up to 136 characters may be printed, if your printer is capable of compressing text. 80 characters is normal. Report widths less than 80 characters will be printed left-justified on the paper.
2. How should your title read? Up to four lines are possible, and they will be centered at the top of the page.
3. How many columns will you need? This will depend on which fields of your datafile you will want listed. Up to eight columns are allowed.
4. What is the width, in characters, of each column? This will depend on the combined character length of the record fields that you choose for each column. The total number of characters permissible in all the columns combined is 80 (or 136 with printers in compressed print mode), with two characters between columns. Choosing eight columns leaves you 76 characters for record fields (14 characters used in spacing).
5. Which record fields will be in each of the columns? As in formatting DFMail mailing labels, you will be able to combine up to three record fields in each column.
6. What will be the header name of each column? A header name cannot be longer than the chosen width of the column.
7. Will you need to total the con-

tents of a column? If so, only the last column may be used for totaling. The column must only contain one field that has numeric data. No special justification will be performed. Use DFCALC for a more sophisticated report.

Try to remember the length of each field in the datafile that will be on this report. If the record data contained within the field is longer than the width of the report column, some end characters will be cut off. 

Datafile Fast Print

No more endless waiting for your database records to print out. Let DFPrint speed things up for you.

By Mike Konshak

RUN It Right

*C-64; C-128 (in C-64 mode); 1541 disk drive
Any ASCII or Commodore printer*

DFPrint is an independent program that reads your datafile directly from the disk drive and, using your predefined format files, prints your reports or labels without interruption. My 450-record datafile now takes only 12 minutes to print out!

If you're already familiar with using DFReport or DFMail, you'll notice many similarities in the menus and sequence of operation. Both report and label functions are combined in DFPrint, with one additional feature—DFPrint lets you send printer commands without exiting the program.

DFPRINT INSTRUCTIONS

To load the program, type
LOAD"DFPRINT", 8<return>,
then RUN <return>.

Note that reversed screen characters are enclosed in brackets in the text. Keys to be pressed are surrounded by inequality signs (< >).

Insert the disk containing the sequential datafiles created by Datafile. Pressing \$ will display the disk directory, so you may view the files on the disk. Pressing Q will terminate the DFPrint program. Pressing O will initiate a prompt, asking for the name of the datafile that you want printed. Enter the name of the file (MAIL LIST, for example), then press the return key.

Note: Do not enter the special

characters as displayed on the directory. These characters (DF], RP] and ML]) keep related datafiles and format files together without a conflict in duplicate names.

If you entered a filename that isn't present on the disk, you'll receive an error message and must try again. Having successfully opened an existing datafile, you will be presented with the Record Printout menu.

The List Unformatted option lets you print your datafile without a predefined format. The records will be numbered and printed in rows, one field after another.

Pressing L will immediately start the disk drive, turning on the red light, and the screen will display the Print Options menu.

Pressing E closes the current file, turning off the drive light, and sends you back to the beginning of the program.

Pressing A starts the drive spinning and the printer printing. Because the printer is slower than the drive, you'll notice the drive's motor turning on and off during the printing operation as it waits for the printer to catch up. If your printer has a 2K or larger buffer, the drive will not cycle as often.

Pressing F displays all the field names within your file. You will select one field that the program will search for.

As the program searches, it displays the record number currently being processed. Every time it finds a "K" as the first character in field #1, it causes the printer to print the record. If there aren't any records that match your entry, nothing is printed.

CAUTION: Once the printing operation has started and the sequential file is being read, no interruptions will be permitted. Any situation that causes the operation to cease will force you to restart the entire process.

After the program finishes reading and printing files, you'll be returned to the beginning of the program.

You can continue working on the file you originally opened (in this case, MAIL LIST). Pressing R sends you directly to the Record Printout menu as before, where you choose one of the various options.

REPORT FORMAT

Pressing R at the Record Printout menu initiates a prompt for the name of the report format file you'll be using for your report. The name of the datafile you originally opened will be shown (MAIL LIST). If this is the name of the format file you want to use, press the return key. Otherwise, enter an alternate name.

The disk drive will load the format into memory. The Print Options menu will be displayed, as described above, with a note that says "Position Paper in Printer At Top of Page."

The report heading will then be printed, followed by the spinning of the disk drive and the printing of the records. Automatic paging will occur every 60 lines, with the titles of columns printed at the top of each page. If you have Datafile 2.9, the summation, or totaling, of the last column will perform as usual, if formatted accordingly.

MAILING LABELS

Pressing M at the Record Printout menu will again prompt a request for the name of the mailing label format to be used. Press the return key or alter the displayed name if appropriate.

The Print Options menu will also display a test label option not found in the report sequences.

Every time you press T, the printer prints a series of numerals based upon the selected label size. The default size is the standard label. Use this function to align your labels before you start printing records. Remember, once you start printing, there's no turning back!

CHANGE LABEL SIZE

Pressing C at the Report Printout menu allows you to change the size of the labels you're printing. (The format of the labels is still defined by your format file.) One use of this feature is that you might obtain a batch of odd-sized labels that you'll want to use with an existing format. Another possibility is to print out an address file, previously formatted for labels, on tractor-feed postcards.

Measure your labels and compare them with a short printout of your file. If you have a label or special form that does not meet the first two choices, S or L, then press O. You will be given the following prompts:

ENTER NUMBER OF ROWS ON LABEL? 5

ENTER # OF CHARACTERS PER ROW? 32

Enter the dimensions that will perform best for you. A few trials may be necessary.


SEND PRINTER COMMANDS

This routine, obtained when you press S at the Report Printout menu, allows you to utilize the various capabilities of your printer.

If you press the E key, you'll return to the Report Printout menu. No printer codes will have been sent.

Pressing T prints the alphabet on your printer in order for you to see what effect your command had on the printout. Pressing A lets you send another series of codes, either to cancel the current modification or to send new or additional codes (you might want compressed print in a Dou-

ble-Strike mode). Press T each time to check the changes.

Note: Do not send commands that will skip over the perforations of the paper, since the report part of both DFReport and DFPrint will take care of this task. 

DFCalc

Here's a handy program that lets you retrieve files created by Datafile and produce spreadsheet-like reports.

By Mike Konshak

RUN It Right

C-64; C-128 (in C-64 mode)

DFCalc uses the sequential files that were previously written to the disk by its companion program, Datafile. DFCalc is *not* a subprogram like DFReport and DFMail, which are controlled by Datafile. DFCalc operates much like another companion program, DFPrint, in that it operates directly off the sequential files contained on the disk.

Before loading DFCalc, make sure you have a file previously created by Datafile. The file should contain the types of records that lend themselves to calculations or to mathematical reporting.

Let's assume that Datafile previously created a file called Inventory. It would appear on the disk directory as "DF] INVENTORY."

The records in Inventory will be used to keep a record file of valuables for insurance purposes. Besides reporting the actual records in Inventory, it would be useful to determine each item's replacement cost.

If, for example, someone stole my computer or my house burned down, I would like to know the replacement value of an item of comparable quality, taking into account an average annual inflation rate of, say, 5 percent. The age of each item must also be determined.

LAYOUT OF REPORT

The layout of the report should resemble Figure 1.

The numbers are displayed below the column headings, and the periods are placed between the column headings to assist in visualizing the spacing of the

form. The column numbers are placed above the headings to show the starting position.

As you can see, the entire report is 67 characters wide and has two title lines. There are eight columns, with the names of their respective headings shown. The position of each column is determined by the length of the datafile field or the calculation that will be printed therein. Each column is spaced two characters apart from the adjoining column. If your record field data is longer than the width of the column, the data will be truncated, starting from the right.

Once you position the columns, you must determine what contents and operations will be part of each column. Figure 2 shows the structure of the columns.

CONTENTS OF COLUMNS

You must define the type of data that will be contained within the columns. DFCalc allows four options:

F—Field Data from the records in the respective datafile. After choosing this option, you will be asked the field number for the field you wish printed in the column.

#—The Record Number of the record within the datafile. This number may also be used in a calculation, instead of entering the contents of a record.

R—A Running Total of data found in a previous column. This may be used to subtotal or show a current balance.

E—An Equation that will calculate the data contained within a record or row and print the results in the column. You will be asked to go through a series of inputs that will construct a proper DFCalc equation.

In the Inventory example, the first column will have the record number printed. Columns 2–6 will contain whatever is found in the respective fields for that record number. You will notice that not all of the fields contained in the record were chosen to appear on this report. Also, the order of the fields on the report is not important.

Columns 7 and 8 are defined to have equations. Column 7's equation will involve subtracting from the constant 85 the value found in field 5. Subtracting the year purchased from the current year results in the age of the item. In column 6, you could use C6 in place of F5, since that column contains the field data (the equation would then be $85 - C6$).

Column 8's equation uses the maximum number of operators allowed (three) within one column in order to derive the desired result. The goal is first to multiply the original cost found in field 4 by .05 to get basically

5 percent of the original cost ($F4*.05$). You then multiply the age of the item (which is calculated for and found in column 7) by the result (RES) of the previous operation ($RES*C7$). This new result (RES) is added to the original cost in F4 to obtain the replacement cost ($RES + F4$).

When working with parentheses in math, it is mandatory to work from the inside out. The equation in the table is broken down into three operations, since there are three operators. To perform this calculation, start at the innermost set of parentheses.

Column 8's equation could also have been written:

$$RECOST = (((C5*.05)*C7) + C5)$$

Since there weren't any calculations performed in column 5, the column and the field are really the same value.

TOTALS AND AVERAGES

The End-Of-Column (EOC) operation must be defined with one of the following three options:

N—No Operation (NOOP), which means: Do nothing with this column.

T—Total, which means: Sum up the contents of the column.

A—Average the contents of the column (average = total/number of records).

Since columns 1–4 and 6 are just displaying field data, we chose not

to perform any end-of-column operations, using N. Column 5 contained the ORIGCOST, or original cost, so we chose T for Total. This will give us the total original cost for the items on the report. Column 7 calculates the age of all the items, and, by entering A, you can see their average age. T was chosen for column 8 to let us know the value of our items.

JUSTIFICATION OF CONTENTS

You must choose in which manner the field data, record number and calculated results will be printed within the column. Your choices are presented in Figure 3. Choosing either D4 or P1 will result in a request for the number of places to the right of the decimal point. (0 through 8 are valid.) If you feel that a calculation might result in answers being printed in scientific notation, then choose either L or R. If text data is formatted with a numerical format, the value of that column will be 0.

In the Inventory example, left-justification was chosen on text data; right-justification on numeric; and currency (C) for the two columns' computing costs.

RUNNING DFCALC

Now let's load up DFCalc.

Type LOAD"DFCALC",8 <return>
Then RUN <return>

Note: letters, words or phrases surrounded by brackets [] denote reversed printing on the screen. Reversed letters normally identify important keys to press.

The first screen displayed relates to configuring your printer (see DFPrint for an explanation). The next screen is:

```
[ CALCULATED REPORTS PROGRAM ]  
USE [P]REDEFINED FORMAT  
OR [D]EFINE NEW FORMAT  
[$] DISK DIRECTORY  
[Q]UIT PROGRAM  
[ PRESS THE APPROPRIATE KEY ]
```

Pressing Q terminates the program and pressing \$ displays the directory of the disk currently in the disk drive.

P will send you to the Operations menu, assuming that you already have a calculated report format defined.

D will enter the Define Report routines, where you'll enter all the requirements for printing the sample file Inventory. When you press D, the screen will display the following prompt. Enter Inventory as shown, then press the return key.

```
INSERT DISK WITH THE DATAFILE  
TO BE USED FOR CALCULATED  
REPORTS.  
ENTER THE NAME OF THE  
DATAFILE:  
? INVENTORY <return>
```

The program will go look at the

Inventory datafile and retrieve some important file-structure data that will be useful later on. The screen will then display the following sequences as you enter the data:

```
[ DEFINE REPORT HEADER FORMAT ]  
ENTER WIDTH OF REPORT  
(136 MAX)  
? 70 <RET>  
ENTER NUMBER OF TITLE LINES IN  
THE REPORT HEADER (4 LINES MAX)  
? 2<return>  
[TITLE#1]  
? HOUSEHOLD INVENTORY <re-  
turn>  
[TITLE#2]  
? MAY 31 1985 <return>  
PRESS [C]ONT [R]EDO [S]TART  
[J]UMP [E]XIT
```

After pressing the return key after the second title, a mini-menu will be displayed. You'll see this often throughout the defining sequence.

The PRESS[C][R][S][J][E] menu allows you to change your mind as often as the menu appears. Following is a description of what each option performs.

C—Continue on to next step (you are satisfied with what you have done so far). Actually, pressing any key, including the return key, will advance you to the next step. You'll find this to be very useful when plowing back through the format.

R—Redo the last step. This will allow you to change the very last

HOUSHOLD INVENTORY
MAY 31 1985

1-----2-----3-----4-----5-----6-----7-----8-----
#.....ITEM.....DESCRIPTION...SERIAL.#.....ORGCOST YR...AGE ..REPCOST
1234567890123456789012345678901234567890123456789012345678901234567

Figure 1. Example of report layout.

COL	CONTENTS	EQUATION	EOC	JUSTIFY
1	#		N	R
2	F1		N	L
3	F2		N	L
4	F3		N	L
5	F4		T	C
6	F5		N	L
7	E	85 - F5	A	R
8	E	((F4*.05)*C7) + F4	T	C

Figure 2. The structure of the report columns.

step or column. You won't be allowed to return to the beginning of a column or to go backwards more than one step.

S—Start over. This will send you back to the screen shown above, where you started defining the format. Don't fret! You won't be required to retype everything. All

your entries will be preprinted on the screen for you. If you don't want to make a change, just press the return key to accept the shown value. Keep pressing the return key to walk back through the sequence until you get to where you left off.

J—Jump to the end of the def-

	NUMBERS	TEXT
L—Left justify	[123]	[ABC]
R—Right justify	[123]	[ABC]
C—Currency, 2 places	[123.00]	[.00]
D4—Decimals, 0–8 places	[123.0000]	[.0000]
P1—Percent, RES*100	[12300.0]	[.0]

Figure 3. Choices for formatting the column.

HOUSEHOLD INVENTORY MAY 31 1985							
#	ITEM	DESCRIPTION	SERIAL #	ORGCOST	YR	AGE	REPCOST
1	COMPUTER	COMMODORE C	S00011142	595.00	83	2	654.50
2	TV	SONY	HA778800	365.50	72	13	603.08
3	TAPE DECK	SHARP	LG324M01	129.95	77	8	181.93
4	MICROWAVE	GENERAL ELE	44TT6789	435.00	84	1	456.75
5	CAT	CRUISER	>	.00	81	4	.00
				TOTAL		AVG	TOTAL
				1525.45		5.	1896.26

FILE: INVENTORY, 5 RECORDS REPORTED

Figure 4. Example of the final, printed report.

initiation sequence. This will send you to the Operations menu, bypassing all further entry or updating of the format definition. J assumes that you have already been totally through the sequence or have loaded a previously defined format. *Do not press J yet.* If you accidentally

jump to the Operations menu, you can get back to start by pressing C for Change Format (more on this later).

E—Exit routine to beginning of program. This bails you out from the definitions sequence and returns you to where you first started the program. You might

use this key if you discover that you're working with the wrong datafile or just want to quit.

Press the return or C or any key to continue. You will get:

```
[ DEFINE REPORT COLUMNAR
FORMAT ]
CALCULATE THE TOTAL LENGTH OF
ALL FIELDS TO BE INCLUDED IN
THE REPORT. ALLOWING 2 SPACES
BETWEEN EACH COLUMN.
ENTER THE NUMBER OF COLUMNS
IN REPORT. (16 COLUMNS MAX)
? 8 <return>
```

```
[FIELD NAME (LENGTH) DATA FOR:
INVENTORY]
```

```
[ 1] ITEM 20      [ 4] COST 9
[ 2] DESC 20      [ 5] YEAR 2
[ 3] SER# 20      [ 6] ROOM 10
```

Before you enter 8 for the number of columns, notice the bottom of the screen. The number, name and length of the fields in the Inventory datafile are displayed. This is why you had to enter the name of the datafile before you started. From now on, at least until you complete your format definition, the datafile references will stay on the screen.

Important Notes:

1) Do *not* use your cursor controls while inputting data. DFCalc and *all* the Datafile programs use Input statements for entering data. To be safe, use the delete key to backspace.

2) Do not use commas, semicolons, colons or quotations within

any input prompt, or you'll most likely lose some of your data or accidentally leave the program.

Pressing the return key will display the mini-menu [CRSJ]; pressing the return key from this menu displays the following (from time to time, the entire screen will not be described, but only those portions applicable at the time):

```
ENTER POSITION OF COLUMN [ 1]
? 0
```

Enter, as prompted, the positions for the individual columns, as seen in Figure 1.

You will notice that the column number (in reversed print) increments each time you press the return key. Continuing to the next screen:

```
ENTER HEADING OF COLUMN [1]
HEADING IS [2] CHARACTERS WIDE
? >
```

Enter the headings as shown on the example, pressing <return> each time.

The screen displays the current column being worked on, as well as the width of the column. Any heading you type that is longer than the number of characters shown will be truncated.

At this point, we'll begin defining the individual columns as to content, justification and end-of-column operations. Continuing:

```
[ FORMAT INPUT ROUTINES FOR
COLUMN 1 ]
ENTER CONTENTS OF COLUMN [ 1]
CHOOSE [F]IELD DATA
      [E]QUATION
      [R]UNNING TOTAL
      [#]RECORD NUMBER
? # <return>
```

F will always be preprinted on the input until all the fields have been defined. Remember, for column 1 you want to use the record number, so press the # key. You will then see this screen:

```
SET COLUMN(1) JUSTIFICATION
OPTIONS: [L]EFT
      [R]IGHT
      [C]URRENCY ($.00)
      [P]ERCENT (%)
      [D]ECIMALS TO RIGHT
? R <return>
```

L is the default prompt. Enter R for right-justification. You have just completed the definition of column 1. Just in case you were wondering, the End-Of-Column screen was bypassed, since the contents of the column contained only the record number and not any important data. From now on, you'll see the additional menu and more. The next three screens reveal:

```
[ FORMAT INPUT ROUTINES FOR
COLUMN 2 ]
ENTER CONTENTS OF COLUMN [ 2]
CHOOSE [F][E][#] Note: simplified menu
? F <return>
```

```
WHICH FIELD # WILL BE IN
COLUMN [ 2]
ENTER [1] THRU [ 6]
? 1 <return>

SET END-OF-COLUMN (2)
OPERATION
OPTIONS: [T]OTAL SUM OF COLUMN
      [A]VERAGE CONTENTS OF
      COLUMN
      [N]O OPERATION TO
      COLUMN
? N <return>

SET COLUMN(2) JUSTIFICATION
OPTIONS: [L][R][C][P][D]
? L <return>
```

That completes column 2. Do the same sequence for columns 3, 4, 5 and 6, according to our previous layout and changing the justification and EOC as necessary.

Now, we'll define the equations for columns 7 and 8. The following should be on your screen:

```
[ FORMAT INPUT ROUTINES FOR
COLUMN 7 ]
ENTER CONTENTS FOR COLUMN
[ 7]
CHOOSE [F][E][R][#]
? E <return>
```

After entering E for Equation, a new screen will appear with prompts for the equation.

```
ENTER EQUATION [1] FOR
COLUMN [7]
[RES]=
OPERAND X? .
OPERATOR ? .
OPERAND Y? .
```

You will note that you are prompted for Equation 1. Up to three equations or operations may be defined in one column. Enter the operands and operator for the equation defined earlier for this column (85-F5). Press the return key after each entry, as shown on the following screen. The completed equation will be shown in the conventional form, followed by the mini-menu.

```
ENTER EQUATION [1] FOR
COLUMN [7]
[RES]=
OPERAND X? 85 <return>
OPERATOR ? - <return>
OPERAND Y? F5 <return>
RES = 85 - F5
PRESS [C][R][S][J][E] <return>
EXPAND EQUATION? [Y] OR [N]
? N <return>
```

Since column 7 does not need any more calculations, you won't expand on the equation. Enter N as shown and press the return key. You finish defining this column by continuing through the End-Of-Column and Justification screens. We are now at the beginning of column 8, which will contain this equation:

$((F4 * .05) * C7) + F4$

Keep in mind that you must start at the innermost set of parentheses and work out. Following is the entire sequence of screens for column 8 (yours

should grow similar as you keep entering data and pressing the return key).

```
[ FORMAT INPUT ROUTINES FOR
COLUMN 8 ]
ENTER CONTENTS OF COLUMN [8]
CHOOSE [F][E][R][#]
? E <return>
ENTER EQUATION [ 1] FOR
COLUMN: [ 8]
[RES]=
OPERAND X? F4 <return>
OPERATOR ? * <return>
OPERAND Y? .05 <return>
RES = F4*.05
PRESS [C][R][S][J][E] <return>
EXPAND EQUATION? [Y] OR [N]
? Y <return>
ENTER EQUATION [ 2] FOR
COLUMN [ 8]
[RES]= F4*.05
OPERAND X? RES <return>
OPERATOR ? * <return>
OPERAND Y? C7 <return>
RES = (F4*.05)*C7
PRESS [C][R][S][J][E] <return>
EXPAND EQUATION? [Y] OR [N]
? Y <return>
ENTER EQUATION [ 3] FOR
COLUMN [ 8]
[RES]= (F4*.05)*C7
OPERAND X? RES
OPERATOR ? +
OPERAND Y? F4
RES = ((F4*.05)*C7) + F4
PRESS [C][R][S][J][E] <return>
SET END-OF-COLUMN(8)
OPERATION
OPTIONS: [T][A][N]
? T <return>
```

SET COLUMN(8) JUSTIFICATION

OPTIONS: [L][R][C][P][D]

? C <return>

PRESS [C][R][S][J][E] <return>

Upon completing column 8's definition, you have completed the entire calculated report format.

CALCULATED REPORTS OPERATIONS MENU

The last <return> you pressed presents this screen:

```
[ CALCULATED REPORTS
  OPERATIONS MENU ]
CURRENT DATAFILE: [INVENTORY]
[S]AVE REPORT FORMAT
[L]OAD REPORT FORMAT
[C]HANGE REPORT FORMAT
[P]RINT RECORDS
[R]ECONFIGURE PRINTER
[$] DISK DIRECTORY
[E]XIT THIS DATAFILE
[ PRESS THE APPROPRIATE KEY ]
```

Pressing \$ will display the directory of the disk currently in the disk drive.

E will exit, closing the file you have been working with and sending you back to the beginning.

C will send you to the start of the format definition routines so that you may change one or all of your entries. Once you have made your correction(s), you can jump back to this menu by pressing J at one of the many mini-menu prompts.

R will send you to the Printer or Interface Configuration menu, where you may send printer (CHR\$) commands.

S will save the current calculated report format to the disk. Warning: Any calculated report format file (shown on the disk as CR] INV....) of the same name will be scratched and replaced with the current format. If you've made changes to a format that you wish to keep, and you still wish to retain the original, give the revised format a new name. Make sure you save your current format before using E or L. You will be given a second chance if you happen to forget.

L will load a format file from the disk into the computer's memory. This will erase the format currently held within the memory.

Both Load and Save routines will preprint the name of the datafile currently being processed for you. You may use the same name for more than one file. All the Datafile programs add a prefix to the beginning of a sequential file's name to help simplify the system. For example, the Inventory file could reside on the same disk with three other files called Inventory, but those other three would have to be format files created by DFReport, DFMail and DFCalc. A typical directory might look as follows:

```

0 DATAFILE 3.0      DF
. . .
8 DF] INVENTORY SEQ—DATAFILE
                      record file
1 RP] INVENTORY SEQ—DFREPORT
                      format file
1 ML] INVENTORY SEQ—DFMAIL
                      format file
2 CR] INVENTORY SEQ—DFCALC
                      format file

```

PRINT OPTIONS MENU

Pressing P at the Operations menu will display the following:

```

[      PRINT OPTIONS MENU      ]
[A]LL RECORDS IN FILE
[F]IND RECORDS WITH COMMON
FIELDS
[E]XIT BACK TO START
POSITION PAPER AT TOP OF PAGE
[ PRESS THE APPROPRIATE KEY ]

```

Pressing E will exit you back to the Operations menu.

A will open the designated datafile and start printing the entire file from record #1 to the end of the datafile. During the printing process, calculations will occur row by row until completion. This may sometimes seem slow; and the more complex your calculations, the slower it prints. The worst case would be to have three operators in each column and to use all 16 columns. That would still be faster, though, than if you had to crank out these reports by hand.

F will print only those records it finds that match your input. Let's say, for example, that you wanted to print the Inventory report using only those records whose item fields began with C. The Find screen looks like this:

```

[ FIND RECORDS WITH COMMON
FIELDS ]
[ 1] ITEM
[ 2] DESC
[ 3] SER#
[ 4] COST
[ 5] YEAR
[ 6] ROOM
WHICH FIELD IS TO BE SEARCHED?
2 <return>
ENTER [COMMON ITEM] (THE EN-
TIRE STRING IS NOT REQUIRED)
[DESC] ? C <return>
SEARCHING RECORD 1

```

The computer first reads the beginning of the Inventory file and displays the fields. After choosing a field number, you're asked to input the common item, in this case, C. When the report is printed out, the net result is that only records 1 and 5 are printed, since their DESC fields held "Computer" and "Cat."


THE FINAL PRODUCT

Let's assume that, at the Print Options menu, A (all records) was pressed. The computer will print the title and heading of the report, then start at the beginning of the sequential file and com-

mence reading the records. After every record, the equations for each column will be calculated and the results printed on the appropriate row of the report.

When all the records have been read, the End-Of-Column information will be processed and printed. Finally, at the bottom of the report, the datafile name will be printed along with the number of records reported.

When the report is printed out, it should resemble Figure 4.

As you can see, column 3 was not wide enough for the data that was printed, so the data was truncated. You can make adjustments after printing by entering the Change Format option at the Operations menu. If you plan on printing many columns and need more space, put your printer into compressed mode. 

Run It Write

This Basic word processor simplifies letter writing, reports, outlines and numerous other personal writing applications.

By John Stilwell

RUN It Right

C-64; C-128 (in C-64 mode)

Run It Write is a simple-to-use word processor for the Commodore 64. For storage, it is designed to use the 1541 single disk drive or the Datassette. For a printout, you should be able to use any printer that uses a serial interface. However, its character editor and improved printer character set (on the 1525e and MPS801) work only on dot-matrix printers that are compatible with the Commodore 1525e printer.

When you run the program, the computer will first ask you for a filename. If you're going to create a document, this is the name under which it will be saved. If you push the return key without first typing in a name, the default filename will be "no name." Note: Each of your files must

possess a different name. If you save a file under a previously used name, that new file will replace the old one.

After you have decided on a name for your text file, the menu will appear.

MENU

There are two names at the top of the menu. The first is the name of the file in the computer. The second name, Printout With File Link, is the next file to be loaded and printed. If the file link name is a — (shifted star), then there are no more files in the series. This feature is handy when you're working on a large project, like a book.

NEW & CHANGE FILENAME

The first option is New. If you want to erase your most recent text file, press N. The computer will ask if you are sure of your decision.

The file will be erased only if you push Y. Anything else will tell the computer that you only want to change the filename.

MAKE A PRINTOUT

The second option in the menu is Make a Printout. Press P to send the text to the printer. The computer will ask you how many copies you want. If you enter a number less than 1 or greater than 99, you'll be returned to the menu. You also have the option of having the pages numbered.

Your Printout begins where your cursor is positioned. To make a printout of your entire file, the cursor must be in the upper left-hand corner of page 1.

The printer begins printing at the top of each page, except for the first page. If you want to abort while printing, just hold down the f6 key. (It may take a moment to react.)

Note: Before making a printout, you should adjust the paper in the printer first and use the Reset option in the main menu. (See Reset Top of Page, more details.)

PRINTOUT WITH FILE LINK

If your document requires more than one file, they can be linked together. To do this, press X and type in the name of the next file to be printed. For example, if Chapter One is in the computer, and you want it to be

linked to Chapter Two, press X and type CHAPTER TWO; then press the return key. At the top of the menu page, you'll see:

name:CHAPTER ONE
linked to:CHAPTER TWO

To use the file links, load in the first file to be printed. Press F and Y to confirm your intentions. You will then be asked if the rest of the files to be printed are on disk or tape. Lastly, you will be given the Page-Numbering option. You will not be given the Multiple-Copy option.

SAVE FILE TO DISK/TAPE

The third option is Save To Disk/Tape. Press S and you'll be asked to confirm your action; you wouldn't want to replace a valuable file prematurely. You'll then be asked if you are using a Dattasette. If not, your file will be sent to the disk drive.

Note: The entire file is always saved.

LOAD FILE FROM DISK/TAPE

This is very similar to the previous option. If you're using tape, the program will load in the first file it runs across. If you're using disk, you'll be asked if you'd like a file listing. Press Y, and the computer will display a listing of the text files that work in this program.

Next, you'll be asked for the file to load. If you don't want to type out the entire filename, just

type its first two letters and an asterisk (*). Warning: This doesn't always work. If there's a program on the disk with the same initial letters as the file you want to load, you must type in the entire filename. You can't use the asterisk.

RESET TOP OF PAGE (PRINTER)

Since many printers, such as the Commodore 1525e, don't keep track of where the top of the next page is located, this word processor will. Before you make a printout, manually advance the paper, if necessary, so that the top of the page is lined up with the top of the print head, and press R. Do this each time you change the paper. The printer will advance six lines, so you'll have a proper margin at the top of the first page.

To turn this feature off and have a continuous printout, read about "paging" under the Contour Peripherals heading.

GOTO TOP OF NEXT PAGE

To manually advance the printer to the top of the next sheet of paper, push T. This is useful when you want to remove a printout from the printer without having to reset the paper afterwards.

This feature works only if you're using the paging feature.

SET PRINTOUT PARAMETERS

To set margins and spacing, press 1. The longest line that you

can have is with the left margin set at 0 and the right margin set at 80. For spacing, you have a choice of S (single spacing) and D (double spacing). When the program is first run, the margins are set at 5 and 75. The spacing is set to double.

As for tab settings, you have four tab stops. When the program is first run, they are set to 5, 10, 35 and 44. When you change them, you can't overlap the values. For example, tab#1 must always be the smallest. Tab#2 must be larger than #1 and smaller than #3.

CONTOUR PERIPHERALS

This section tells you how to modify the program to work with the disk drive and printer. Press the 2 key, and you'll be asked for the printer's device number. This is normally 4, but if you have two printers hooked to your computer, one of them will probably be device 5.

Next, you'll be asked for the disk drive's device number. In the standard C-64 setup, this number is 8. However, you may occasionally want to send to a disk drive with the device number 9.

Paging is an important feature and is used in most applications. Not only does it number your pages, but it allows the computer to recognize its position on a sheet of paper. When the computer approaches the bottom of the sheet,

name: Karla's Pictures
linked to: -

N -NEW FILE & CHANGE FILE NAME
P -MAKE A PRINT OUT
F -PRINT OUT WITH FILE LINK

S -SAVE FILE TO DISK/TAPE
L -LOAD FILE FROM DISK/TAPE

R -RESET TOP OF PAGE (printer)
T -GOTO TOP OF NEXT PAGE (printer)
1 -SET PRINTOUT PARAMETERS
2 -CONTOUR (peripherals)
X -FILE LINK NAME

Push any other key to enter the text mode.

printing is suspended. The paper is then automatically advanced to the top of the next sheet, where the printing is resumed.

Note: Page numbering is only available if you are using paging. Commands related to paging are Goto Top of Next Page (in Menu and Text Mode) and Reset (in menu). When using paging, make sure your paper is $8\frac{1}{2} \times 11$ inches.

Lastly, you will be asked whether you want to use your printer's character set. If you choose not to use your printer's character set, the program will provide you with its set. The only disadvantage to this is that a

printout may take up to twice as long, because the letters p, g and q are bit-mapped.

If you choose to use the program's character set, you are given the option of designing up to three of your own characters.

Run It Write has a character editor that is composed of a rectangular block holding three work grids for three characters that you can generate. If you only want to create one character, simply leave two-thirds of the work space blank.

In the character editor, use the cursor keys to move around. To color in a square, press the + key. To erase a square, press

the `-` key. To erase an entire character, move the cursor onto it and press `W` to wipe it clean. To see how the characters will appear on the printout, press `T`.

When you want to exit the character editor, press `Q` to quit. The computer will then prompt you to assign these keys to the three user-defined characters.

Note: These user-defined characters are used only on the printer. They are not redefined on the screen.

TEXT MODE

In Text mode, you type as if you were using a typewriter. At the end of each paragraph, you simply press the return key. This program is different from other word processors in that when you signal the end of a paragraph, the cursor does not return to the left-hand margin. Instead, a checkmark is placed on the screen and the cursor simply moves one character to the right.

DIRECTION BAR

The function keys are used to embed special commands into the text. If you should forget them, the red bar at the top of the screen will come in handy. To use it, hold down the `CTRL` key, then press `2`. This will turn the direction bar black, and the cursor will stop flashing. At this point, the left and right cursor keys horizontally scroll function-

key information. To return to the Text mode, press the return key.

THE TEXT PAGE

When you call the Text mode for the first time, you'll see a white screen. In the upper left-hand corner is displayed "`Del/Inst=1.`" This means that when you delete or insert, you will do it one character at a time. Next to this is "`Pg 1, End page 1.`" This means you are on page 1 with the end text page at 1.

The green square below the direction bar is the cursor. The home key places the cursor at the upper left-hand side of the screen.

INSERTING & DELETING

To insert and delete characters, use the insert and delete keys. Deleting and inserting can take up to one second, depending on the size of the text. Press `CTRL` and `1` at the same time. The "`Del/Inst=1`" at the top of the screen will change to "`Del/Inst=22.`" Now you can delete 22 characters at a time. To change back, simultaneously press `CTRL` and `1`.

AUTOMATIC PAGE FLIPPING

When the cursor moves off the top or bottom of the screen, the text will shift forward or backward ten lines. In this way, you'll always have some text on the screen. (A page is half a screen.)

CONTROLLED BY THE FUNCTION KEYS

TAB

The f8 key is the tab. It works much like a normal typewriter tab. When the printer sees this character (a square with diagonal lines in it), it will advance to the next tab setting.

SPACING

To change to double spacing from inside the text, press f2. For single spacing, press f4.

GOTO TOP OF THE NEXT PAGE

To move the printer to the top of the next page from inside the text, press f3.

CENTERING LINES

To center a phrase, press the f5 key at its beginning and a Return, Center or a Top Of Page at its end.

PAGE FLIPPING

The f1 and f7 keys are used for page flipping. If you want to skim over earlier pages, press f1. To look at later pages, press f7.

BACK TO THE MENU

If you are in the Text mode and want to go to the menu, press the f6 key. Similarly, to abort a printout and go to the menu, press the f6 key.

COMMON PROBLEMS

To indent a paragraph, use tab; merely typing in spaces will not work.

If you use the character graphics to draw pictures, be sure your printout is single spaced.

Well, this word processor is a real word monger, and we hope you enjoy it! ®

Runterm

This fast, professional-quality terminal program lets you tap into infinite sources of information.

By Robert Sims

RUN It Right

C-64; C-128 (in C-64 mode)

Disk drive and modem

With this general-purpose terminal program, Runterm, you can communicate with any computer that is using ASCII data format and xmodem transfer protocol. It also allows you to call local bulletin boards, using either standard ASCII or Commodore ASCII data format, and to swap programs with a friend.

To use Runterm, insert the ReRun disk into your drive. If you're using the VIC-Modem, you should set it for Originate. For the Commodore 1650 Automodem or compatibles, set the modem for Originate and Telephone (Voice), then enter

LOAD"RUNTERM",8

and press the return key. When the program has loaded, type

RUN and press the return key. You'll see the opening screen.

When you select the service you wish to call, Runterm will set up your computer and modem to communicate for that specific service; you don't have to worry about stop bits, word length or other technical aspects of telecommunication. If you wish to call a service that requires special settings, however, you can do so by selecting item 6, Custom Settings.

After you make your selection, the screen will clear, and Runterm is ready.

For a bulletin board or major on-line network, dial the number of the service and wait until you hear the carrier signal (a high-pitched, steady tone). VIC-Modem users should disconnect the headset from its cord and plug the cord into the modem. 1650 owners should move the D/T

Runterm

- 1) CALL COMPUERVE
 - 2) CALL DELPHI, SOURCE
 - 3) CALL A FULL-DUPLEX BBS USING
COMMODORE ASCII
 - 4) CALL A FULL-DUPLEX BBS USING
STANDARD ASCII
 - 5) HALF DUPLEX & COMMODORE ASCII
 - 6) USE CUSTOM TERMINAL SETTINGS
- >

switch to D (data). When you see the LED light up on your modem, the connection has been established.

If you're calling a friend, then you must decide between you when to switch your modem over to Data; you don't need to be too concerned with making a connection to the other computer.

CONTROL CODES

At this point, most national services require that you enter a

log-on code, which tells the host computer that you're ready to go. CompuServe, for example, waits for a Control-C (ASCII 3) or a Return. If you are calling Delphi via Tymnet, you'll be asked to enter your terminal identifier (you type an "a").

In addition to the log-on code, you'll need to send and receive other special control codes. The first 27 characters in the ASCII character set—Control-A through Control-Z—constitute, along with

the escape key, the most common codes.

To generate these codes with Runterm, hold down the CTRL key and press the appropriate key. CTRL-A sends a binary 1, CTRL-20 (delete) sends a binary 20, and so on. To send the escape character, hold down the CTRL key and press the colon key. (Escape is often used on CompuServe).

OTHER SPECIAL KEYS

In the process of communicating with another computer, you'll need to perform several auxiliary operations, such as checking the disk directory, capturing data in a buffer and saving it to disk and preparing to receive a file. These operations are performed using local commands, generated via a combination of the logo (Commodore) key and the letter keys.

For example, you can read the disk directory by holding down the logo key and pressing the D key. As it does for all local commands, Runterm sends to the other computer a CTRL-S (ASCII 19) to put it on hold so you won't get incoming data mixed into the directory contents. It then gets the disk directory and displays it to the screen. When the last byte of the directory is displayed, Runterm sends the other computer a CTRL-Q, telling it to re-

sume transmission. All this is transparent to you; I include it for your information only.

There are two more disk maintenance commands—Logo-N and Logo-R. Use Logo-N to scratch a disk file. Simply type in the name of the file to be scratched, and Runterm will remove it from the directory. Logo-R is used to rename a file. At the filename prompt, enter the change according to this format:

newname = oldname

and hit the return key.

BUFFER COMMANDS

To see a menu of these local commands and the keys that generate them, hold down the logo key and press M.

Most commands are self-explanatory. The Logo-O combination opens the 32K capture buffer; Logo-C closes it; and Logo-Z resets the pointers to the beginning of the buffer.

To capture characters—incoming and outgoing—in the buffer, press Logo-O. You will be notified if the buffer fills up, and the other computer will be put on hold until you either save the buffer contents to disk or clear the buffer.

Two commands allow you to save the buffer contents to disk. Logo-U will save in a disk file all characters in the buffer. The pro-

key +	FUNCTION
A	Author information
B	Display buffer to screen
C	Close buffer
D	Display disk directory
H	Change border color
I	Change background color
J	Change text color
K	Redefine DELEte key
L	Load a file to buffer
N	Scratch a file
O	Open the buffer
P	Print buffer contents
Q	quit the program
R	Rename a disk file
S	Save edited buffer
T	Change terminal settings
U	Save buffer unedited
V	Upload buffer
W	Word wrap status
X	Xmodem file transfer
Y	Upload buffer w/prompt
Z	Zero buffer
Press any key to continue	

gram will ask you to supply the filename and file type (program or sequential). Logo-S also saves buffer contents, but edits out screen codes and control codes so the saved file can later be printed.

Logo-B allows you to view the buffer contents on screen, and Logo-P will send the buffer contents to the printer, stripping out screen codes and control codes.

The program handles all characters as Commodore ASCII. If you are calling a standard ASCII

database, characters are translated to standard ASCII as they are sent. Incoming characters are converted to Commodore ASCII before they are stored, so all text will be in a format compatible with your computer, and you don't have to concern yourself with conversions.

There are two ways of transferring files with Runterm. You can either load the file from disk to the program's buffer area, then upload the data from there, or, using the xmodem protocol, you can

transfer files directly to and from your disk. Again, there is no need for conversion; programs transferred by xmodem are ready to run when the transfer is done.

A note about CompuServe downloads is appropriate here. On CompuServe, you can download all files in the Commodore Information Network. The special handling required to download programs with the extension .IMG is handled automatically by Runterm.

If you wish to upload via the buffer, use the Logo-L command to load the file into the buffer—it will be loaded over anything that was previously there. To transfer the buffer contents to the other computer, you have two choices: Logo-V and Logo-Y. Logo-V will send the entire buffer contents without pause.

Logo-Y will ask you to enter a prompt character. The routine will then upload each line of the buffer, pausing after it sends each carriage return. During the pause, Runterm examines incoming characters for the designated prompt character, which signals that the other computer is ready to receive the next line.

This transfer method is specially designed so you can upload messages to bulletin board systems from your disk. Generally, you can compose a message on your word processor and store it to disk as a CBM

ASCII text file. Then, when you're on-line and want to send your message to the bulletin board, load the file using Logo-L. When the BBS tells you to enter your message, Press Logo-Y and supply the prompt character, and Runterm will send the message contents automatically.

To use Logo-Y, of course, you must know the prompt character being sent by the other computer. In most cases, this prompt character will be the last character in a menu, or a start-of-line marker. Before using the Logo-Y command, try to notice which prompt character is being used.

On CompuServe, this prompt is usually a greater-than symbol (>) or a colon (:). On Delphi, the prompt is usually a linefeed (you type CTRL-J when asked to supply the prompt), sent after a carriage return. Other systems simply send the return, without a linefeed. If you don't see an obvious prompt character, try the linefeed or carriage return. Or, better yet, check the service's documentation or ask the SYSOP.

XMODEM TRANSFERS

To transfer a file directly to or from your disk, use the Logo-X command. The chronology for an xmodem transfer is as follows. You select download or upload from the other computer's menus. The other computer will

tell you when it's ready. Then you press Logo-X and type U or D at the prompt.

If you select U, for upload, Runterm will ask you to supply the name of the existing file to be uploaded and will then take over from there. You will be notified when the transfer is completed, and keyboard control will resume.

If you select D for download, you'll be asked for the filename and file type. The program then creates the new file on the disk. (You must not use an existing filename.) The download process then becomes automatic. You only have to wait until the program notifies you that the transfer is complete.

If noise on the phone line or some other problem garbles the transmission, then the garbled portion is re-sent. If Runterm and the other computer are unable to complete the transfer, Runterm will automatically abort the transfer and return to keyboard control.

CHANGING COLORS AND SETTINGS

Three commands—Logo-H, Logo-I and Logo-J—change the border, background and text colors, respectively. If you are using Commodore ASCII, then you can also use the regular key combinations to change text color, just as you do when the 64 is in Immediate mode.

There are times when you'll want to change your terminal settings without restarting the program. To redefine your delete key, use Logo-K. The standard delete character is an ASCII 127. However, some services require you to use a backspace (ASCII 8), and you may need to revert to the Commodore delete character, ASCII 20.

Runterm sets the delete character according to which service you select from the opening menu. For CompuServe and linkups using Commodore ASCII, the setting is the regular ASCII 20; for Delphi and The Source, the setting is ASCII 127 (true delete).

To reset any or all of your terminal parameters, use Logo-T. This command will review each setting and ask if you wish to reset it.

THE PROBLEM OF WORD WRAP

Since the C-64 has a 40-column screen, whereas most telecommunication services use an 80-column format, you often find that incoming data will wrap around the screen, leaving the first part of a word dangling on the end of the previous screen line. If this irritates you or makes the word hard to read, then you need Logo-W.

When Runterm boots up, the Logo-W routine is set to eliminate

this problem. The screen is formatted for 40 columns. Broken words are erased from the previous line and moved to the next line for ease of reading.

However, there are times—when typing in messages, for example—when you will want to use an 80-column format to keep up with spacing and the number of characters in a line. To turn off the justification routine, just type Logo-W. Each time you type Logo-W, the program will toggle and tell you its current status.

Some services—Delphi is one—have a word-wrap feature in their software that is set automatically when you join the service. In such cases, you may want to set Runterm to the 80-column format (allow word wrap), so that the two justification features will not work against one another.

Logo-Q is used to end the program cleanly. If you accidentally hit it, the program allows you to change your mind.

Finally, Logo-A is a false command that will give you information about the author of Runterm.

GRAPHICS AND LOGO COMMANDS

The function keys on the 64 are handy, but there aren't enough of them. That's why Runterm uses

the logo key format. As long as you're communicating with another computer using standard ASCII, there's no conflict. But if you're using Commodore ASCII and want to send the graphics characters represented by the logo key and letter key combination, you must use the f8 key to leave Command mode and enter Graphics mode.

Like the Logo-W command, f8 is a toggle that switches the program between two states. When Runterm is booted, it is in Command mode. This means you can use the logo key to generate local commands. If you're using Commodore ASCII and wish to send graphics characters, just hit f8 to go into Graphics mode, then hit it again when you need to use commands. Each time you toggle f8, the program tells you which mode you have selected.

OTHER MODEMS AND THE 1520 PLOTTER

With a few Pokes, you can use Mitey-Mo or HESmodem II with Runterm. You should make these Pokes after you load the program, but before running it.

The first Pokes for Mitey-Mo and HESmodemII are:

POKE 13678,102
POKE 13679,32
POKE 13680,102


For the Mitey-Mo and HES II, make this Poke if you want to be in Originate mode:

POKE 13681,2

For Answer mode, enter:

POKE 13681,64

If you're using Runterm and a Mitey-Mo to call a friend, one of you has to be in Originate mode and the other in Answer mode.

If you have a 1520 plotter, two Pokes will allow you to use it with Runterm. POKE 13631,6 changes the device number to 6. POKE 13632,n—where n is the number for the secondary address that puts the plotter in the mode you want—changes the secondary address at location 13632. 

Screen Print

Now, with only one program, you can print both low- and high-resolution screens. And doing so is as simple as pressing a function key.

By Robin Franzel

RUN It Right

C-64; C-128 (in C-64 mode)

Disk drive; printer

If you have ever worked with either high- or low-resolution graphics, you've probably wished that you had some way to capture that screen image on paper.

Screen Print will dump a text screen to any printer and a high- or low-resolution graphics screen to your dot-matrix printer. You only have to press a function key, and the program will determine whether you're in high or low resolution and print accordingly.

It will also load a previously saved hi-res screen, whether that screen was saved as a sequential file, a straight program file or a Koala file. You needn't concern yourself with what type of file you're loading. Just enter the filename, and the program will figure out what you're talking about and load it.

You can also save a hi-res screen to disk by just pressing a function key and entering the filename.

If you're in lo-res and have a hi-res screen loaded, you can view your hi-res screen by pressing another key. While in the view screen, f1 will print the hi-res screen, and the space bar will return you to your prior screen.

PRINTING YOUR SCREEN

If you have a 1525 printer, you're all set to use the program as described below.

If you have a non-Commodore printer, after you have run Screen Print, load and run Screen Print 2. This program will modify the main program to work with a Gemini 10X printer with a Cardco ?/+G interface. It is easily modifiable to work with virtually any dot-matrix printer and will enable you to take full advantage

of your non-Commodore printer's capabilities.

Screen Print 3 is provided for your convenience. It will save the machine language program to disk with the name HIRESUTIL, which will enable you to start up the program by entering:

```
LOAD "HIRESUTIL",8,1
```

and then

```
SYS49152
```

This will load the program much faster and, for non-Commodore printer users, will make it unnecessary to load and run two programs.

To use the program, load and run Screen Print and, if necessary, Screen Print 2. Then load and run Screen Print 3. You'll be asked to insert a disk and press a key when ready. When you do this, the Screen Print program will be saved on your disk.

HOW IT WORKS

The program is interrupt-driven, which means that it can work even while you have another program running (as long as there isn't a conflict of memory use). Sixty times a second, location 197 (\$C5) in the C-64 is checked for a depressed key. If one of the function keys is pressed, then the Print Screen Plus program takes over and does its work. When it is finished, it returns you to where you left

off in your program. You can change the keys that do the work, but the program defaults are as follows:

f1 Checks to see if you are in High-Resolution or Low-Resolution mode and prints the screen.

f3 Prompts you for a hi-res filename and then loads a file. Pressing the return key without a filename will return you to your processing.

f5 Prompts you for a filename, and then saves the hi-res screen. Pressing the return key without a filename will return you to your processing.

f7 Turns on Hi-Res mode for viewing a screen in memory. Press the f1 key to print the screen or the space bar to return to your processing.

To change the keys that perform these functions, simply update a four-character table in the program with the key code for the new key. A chart of these key codes can be found in *RUN's* Special Issue on p. 146. To disable a function, Poke the table with a 0. The program table is in location 49283 (\$C083) and is in Print, Load, Save and View sequence.

For example, to change the program so that the £ key initiates the save function, enter:

```
POKE 49285,48
```

Location 49300 (\$C094) con-

tains the secondary address when opening the printer. You need to Poke this location if you want to change from uppercase/graphics to lowercase/business mode when printing a low-resolution screen. The default is uppercase. To change to lowercase, enter:

POKE 49300,7

To change back to uppercase, enter:

POKE 49300,0

Why do you need to use Screen Print 2 for non-Commodore printers? One reason is speed. With only Screen Print, dumping a hi-res screen to the Commodore 1525 printer takes a tedious four minutes and 12 seconds.

With Screen Print 2, my Gem-

ini printer will print a hi-res screen in 35 seconds! The program routine enables you to bypass the interface and send control and data codes directly to the printer.

Screen Print recognizes the hi-res screen as a bit-map screen, which is nice, even in Multicolor mode, because each of the four colors will be given a different shading. To see how your picture will appear on the screen, use the View option.

Note: C-64 Screen Print will work with many of *RUN*'s previously published hi-res drawing programs. "Joystick Artist" (June 1984) is one such program. Also, this screen print program will work with "High Performance Turtle" (July 1985) and "Graphics Display System" (October 1985). ☐

Financial Assistant

Calculating mortgages, loans and investments is a snap with this program.

By S. Lee Zielen

RUN It Right

C-64; C-128 (in C-64 mode)

Home Finance Aid is simple to operate. From the menu, just press the appropriate function key to select the desired calculation, and then follow the prompts. If you press an invalid key, you'll hear white noise. Pressing valid keys produces a tone. The functions provided are described below:

- f1 Determines the payment for a loan or mortgage.
- f3 Calculates the future value of a lump-sum investment.
- f5 Calculates the future value of a periodic investment of the same amount of money (e.g., a payroll deduction to a credit union account).
- f6 Prints an image of the current screen.
- f7 Exits the program.

In all calculations, the interest rate, investment or loan amount and the time period are variable. During the calculation of a loan payment, it is assumed that the interest amount is applied as each payment is made. For investments, the frequency of compounding is entered as "Interest Periods per Year." For example, to compound interest quarterly, enter 4. To compound daily, use 365.

The time period is entered as a decimal for fractions of a year in response to "Number of Years." For example, specify 1.5 for 18 months.

Pressing the return key in response to a prompt will retain the last value entered for the prompt. This feature is handy for making comparisons. For instance, to compare the cost of a car loan for four years versus five, first enter the data for the loan for four years. Then press

HOME FINANCE AID

f1—Determine Payment for a loan

f2—Calculate Future Value of an Investment

f3—Calculate Future Value of an Equal Periodic Investment

f6—Print Hardcopy Image of Current Screen

f7—End

the f1 key to perform the calculation again. This time, enter 5 for "Number of Years" and hit the return key for the other prompts.

You can use the f7 key to re-

turn to the menu from any prompt and the f6 key to print an image of the screen after any calculation. The f6 key can also be used to print the menu or instruction screen. **®**

Disk Master Accelerated

Here is an enhanced version of Disk Master Revisited, by Bob Baker, which appeared in RUN's February 1984 issue. This program, by Carl Musolff, duplicates the features offered in Disk Master, but speeds them up considerably through the use of several machine language routines.

By Bob Baker and Carl Musolff

RUN It Right

*Commodore 64
1540, 1541, or other disk drive
Commodore printer optional*

Disk Master is a program designed to catalog a number of disks in a large master directory on a single disk. The program automatically reads the directory blocks of any desired disk and writes a condensed directory file on the master directory disk.

It also maintains a cross-reference file to record the relationships between disk IDs and disk names. In addition, Disk Master provides several utility functions

for locating specific files, displaying individual directories, listing the disk IDs currently in use, and so on.

The original version of Disk Master for the PET and CBM systems was published in the June 1982 issue of *Microcomputing* magazine.

USING THE PROGRAM

To use the program, you first format a blank disk to become the master directory disk. Then copy the Disk Master program as the first file on the disk. Once this is done, simply insert the disk in the drive and run the program.

Disk Master will create and maintain all necessary files on the master directory disk.

For the program to function properly, you must always place the master directory disk into the drive when Disk Master is started. I'd suggest that you not put any other programs on this disk, since the program assumes that the entire disk is available for storing directories.

Whenever the program is run, a menu identifies the five major functions available. To perform a specific function, simply enter the indicated number. Entering zero will terminate the program and return you to Basic.

FUNCTION DETAILS

1—Update master directory.

When you select this function, you remove the master directory disk from the drive and insert the disk you want cataloged. Then you press any key on the keyboard.

The program will display the disk ID and name as read from the disk and then wait for verification that the correct disk was actually inserted. If N is entered, the program will wait for another disk to be inserted. After a Y response, the program will proceed to read the disk directory and sort the filenames found into alphabetical order.

If the disk ID has already been

cataloged, but with a different disk name, a warning message will be displayed. You then can either abort or continue the catalog update function. If everything is OK, the program will ask you to insert the master directory disk back in the drive and press any key when ready.

Disk Master will then update the master directory and the cross-reference file. Once this is completed, you can remove the master directory disk and insert another disk to be cataloged.

If you enter Q when the program is waiting for a disk to be inserted and cataloged, the program will terminate the update function and return to the master function menu. However, before redisplaying the master menu, the program will remind you to make sure the master directory disk is inserted in the drive, and it will wait for any key to be pressed before proceeding.

You can easily catalog any number of disks by merely inserting them one after another, but always in alternation with the master directory disk to save the catalog information. If a disk has already been cataloged, the new directory will simply replace the older entry to update the master directory.

2—Delete disk entry from master. This function allows you to remove a particular disk com-

pletely from the master directory. It performs all necessary house-keeping by deleting the appropriate datafile and the disk entry in the cross-reference list of disk IDs and names.

This should be the only method used to remove an entry from the master directory. Do *not* try to delete the datafile on the master directory disk manually. The individual directory files are named by "DIR." plus the two-character ID for the corresponding disk.

The disk to be deleted is identified by its disk ID or by its name. A cross-reference of disk IDs and names exists so that you can specify either. To enter the disk name instead of the ID, press the return key alone for the disk ID and then enter the desired disk name.

You can even use an asterisk at the end of the disk name to indicate character-matching on the characters entered. The program will display a disk name and ID, then check to see if they are correct. If the response is N, and you used an asterisk for character-matching, then the next ID entry in the cross-reference list will be displayed.

This lets you search quickly for the desired disk if you can't remember the ID or full disk name. If you enter only an asterisk for the disk name, the program will

automatically step through the entire list of disks until you indicate that the correct one is found. You can use "?" as a wildcard. "?*" will list the entire directory.

Pressing the return key alone for the disk name will end the function and return you to the master function menu. If you enter a disk ID or name that does not exist in the master directory, an error message will be displayed. Simply press any key to continue; then enter another disk ID or name.

3—*Display selected directory.* This displays or prints the directory of any disk that has been cataloged. The specific disk must be identified by its ID or name in the same manner as in the delete function. Once the correct disk is found, the disk directory displayed or printed will indicate:

- the disk name, ID and format
- the number of blocks free
- each file on the disk, with the number of blocks in the file and the file type
- the total number of files on the disk

While the directory is being displayed or printed, hitting any key will suspend the operation until another key is hit. If the next key you hit is Q, the directory will be aborted and you can select another disk to display. Hitting the return key for both the ID and disk

name will terminate the function and return you to the master function-selection menu.

4—Find specified file. This function provides a method of finding all copies of a particular file and indicates what disks they can be found on.

Again, you can use character-matching when entering the filename by adding a trailing asterisk, but at least one character must precede it. If an asterisk is not used, then the filename must match exactly to be displayed or printed. Otherwise, if the specified number of characters match, the file will be included in the list. For example, you can list all files that start with the word DISK by entering the filename DISK*.

Entering return alone for the filename will return the program to the master menu. While the list of files is being generated, hitting any key will suspend the operation until another key is pressed. If the next key you hit is Q, the operation will be terminated and you can enter another file to be sought.

5—List disk IDs and names. This function provides various lists of IDs and names for the disks currently cataloged. It displays another menu to select the desired list. While any list is being displayed or printed, hitting any key will suspend the operation until another key is pressed.

If you enter Q, the operation will be aborted, and control will return to the list-selection menu. Entering zero for the list selection will return you to the master function menu. The various lists provided are as follows.

Typing 1: prints a chart showing all disk IDs currently in use and cataloged. This is about a two-page list, and you must use a Commodore printer. It shows all IDs consisting of the numbers 0–9 and the letters A–Z in any combination.

It's intended to be used as a check sheet when you assign new IDs. This chart uses the PET graphics, so it'll probably not print correctly with non-Commodore printers.


Typing 2: displays or prints in alphabetical order a quick list of all IDs currently in use. Only the IDs are given, along with an indication of the total number of IDs cataloged.

Typing 3: displays or prints a list of all IDs in use, along with the corresponding disk name. This list is printed in alphabetical order, as per the disk IDs.

Typing 4: displays or prints a list of all cataloged disks, showing the ID and name and the number of free blocks on each. The program allows you to specify the minimum number of free blocks a disk must have to be included in the list.

This lets you, for instance, indicate that you want a list of all disks with at least 100 free blocks. The default value is zero, so every disk currently cataloged will be listed if you don't change the value displayed.

Typing 5: similar to Typing 4, except that it asks you to specify a *maximum* number of free

blocks for a particular disk to be included in the list. This allows you, for example, to call for a list of all disks with no more than 10 free blocks. An arbitrary default value has been preset at 99. If you enter a new number with a single-digit value, be sure to clear the last digit of the default 99 value. 

Double Your Basic!

Here's Basic 4.5, a professional-quality extended Basic that adds all the Basic 4.0 commands to your C-64's Basic, plus sprite graphics, music, windows and additional disk commands.

By Robert Rockefeller

RUN It Right

C-64; C-128 (in C-64 mode)

This program incorporates all the Basic 4.0 commands, allowing C-64 owners to run much of the software developed for the PET/CBM line, as well as some sprite graphics, music, windowing and additional disk commands. To activate Basic 4.5, type `LOAD"BASIC 4.5",8,1`. Then type `SYS 64738`.

SCREEN-RELATED COMMANDS

REV left-most column (0-39), top row (0-24), width (1-40), depth (1-25)—reverses everything within the defined window.

INV left-most column (0-39), top row (0-24), width (1-40), depth

(1-25)—inverses everything within the window. This can reverse the **REV** command.

RIGHTW left-most column (0-39), top row (0-24), width (1-40), depth (1-25)—scrolls everything within the window one column to the right and inserts a column of spaces at the left-most column of the window.

LEFTW left-most column (0-39), top row (0-24), width (1-40), depth (1-25)—scrolls everything within the window one column to the left.

UPW left-most column (0-39), top row (0-24), width (1-40), depth (1-25)—scrolls up one row.

DOWNW left-most column (0-39), top row (0-24), width (1-40), depth (1-25)—scrolls down one row.

FLASH #times (0–255), speed (0–255), left-most column (0–39), top row (0–24), width (1–40), depth (1–25)—flashes the defined window.

FILL screen-code value (0–255), color (0–15), left-most column (0–39), top row (0–24), width (1–40), depth (1–25)—fills a window with a character of the specified color. It may be necessary to use Fill before REV or INV if the window has spaces that are the same color as the current screen color. In that case, a reversed space would not be seen.

BFLASH #times (0–255), speed (0–255), color 1 (0–15), color 2 (0–15)—flashes the border in the specified colors.

CENTRE <string expression>—centers the string on the screen row where the cursor is located. If LEN (string) >40, then the action is like the Print command. Any string parameter usable by the Print command is accepted.

LOCATE x-position (0–39), y-position (0–24)—moves the cursor to the specified x,y position; 0,0 is the upper-left corner. 39,24 is the bottom right.

DISK COMMANDS

All the disk commands, except Record, accept Basic 4.0-type parameter strings. This means the parameters following a com-

mand may be in any order. Example—DLOAD “basic program” (filename),D0(drive number),U9 (device number) and DLOAD U9,D0,“basic program” are both valid commands. Several parameter types are allowed. Some parameters are always optional.

1. Some commands require that a filename be specified. A filename may be a literal string in quotes, or a string expression or string variable in brackets. Examples—(RIGHT\$(CC\$,2)) or (A\$).
2. A drive number—D, followed by 0 or 1. This is usually optional. The default is drive 0.
3. A device (unit) number—U, followed by 4–31. This is always optional. The default is unit 8.
4. A logical file number—#, followed by 1–255.
5. When opening a new file for writing, DOPEN requires that a file type be specified. This may be *one* of the following:
 - (a) W. A W in the parameter string indicates a sequential file is being opened for writing.
 - (b) L, followed by 1–254. An L indicates a relative file is being opened. The following number is the desired record length. If no file type is specified, a Read File is assumed.
6. @. If an @ is the first letter of the filename, a Save with Re-

place or an Open with Replace command will be executed. Examples—"@basic program" or ("@" + name\$).

7. I, followed by any two letters. This is optional in the Header command. It indicates the desired I.D. for a disk being formatted. If I is omitted, only the directory will be erased.

APPEND #logical filename (1-255), filename—commands the disk to append to the end of the specified file any data sent to that disk.

CONCAT source-filename to destination-filename—concatenates one file to another file.

DOPEN #logical filename, filename, optional file-type specifier—opens a file.

DCLOSE #filename—closes the file specified.

DCLOSE—closes all open files.

DCLOSE unit number—closes all files open to the specified device.

RECORD #logical filename, record number (1-65535), optional byte within record (1-254)—sets the disk record pointer to the specified record.

HEADER filename, Ddrive number, optional I.D.—formats a disk.

COLLECT—validates a disk.

BACKUP Dsource-drive to Ddestination-drive—backs up a

disk. This command requires a dual drive such as a Commodore 4040 or an MSD superdisk.

COPY source-filename to destination-filename—makes a copy of a sequential file.

DSAVE filename—saves a Basic program to disk.

DLOAD filename—loads a Basic program.

CATALOG optional filename—lists the disk directory on the current output device.

RENAME old-filename to new-filename—renames a file.

SCRATCH filename—deletes a file from the disk.

DIRECTORY optional filename—performs the same function as does Catalog.

EXEC #logical filename, filename—executes a sequential file on disk. Any Basic program may be listed to a disk file and executed with EXEC. The exceptions are:

1. No files may be opened or closed from an exec file.
2. No GOTOs or GOSUBs are allowed.
3. May only be executed in the Direct mode.

MERGE #logical filename, filename—merges the file from disk with the program in memory. Files must be created with List. EXEC and Merge can use the same files.

*** * * * BASIC 4.5 * * * ***
(c) 1984 Robert Rockefeller

38719 basic bytes free

Basic 4.5 simplifies the complex disk, window, sprite, and sound commands used by the C-64. Simple, easy-to-remember keywords replace the C-64's codes.

BLOAD filename, P optional destination address. Example—BLOAD“M.L.”, P\$C000 loads to hex \$C000. BLOAD“M.L.” alone loads to the original address.

BSAVE filename, Pstart-address to Pend-address—saves a portion of memory. Example—BSAVE “BASIC 4.5.”, P\$8000 TO P\$A000 will save a copy of Basic 4.5 to disk.

SEE #logical file, filename—views a sequential file on disk.

AFFIX filename—loads a Basic program at the end of a program that's in memory.

DCLEAR—initializes the drive.

MUSIC COMMANDS

VTYPE voice# (1-3), pul (0-65535) or tri or saw or noi; optional sync or ring—sets the voice type.

VOL (0-15)—sets volume.

ENV voice# (1-3), attack (0-15),

decay (0-15), sustain (0-15), release (0-15)—sets envelope.

NOTE voice# (1-3), frequency (0-65535), duration (0-255)—plays one note.

PLAY voice# (1-3), buffer-start address, buffer length or OFF—IRQ-driven play command; plays while a program is running.

VIBRATO voice# (1-3) ON or OFF—turns vibrato on or off.

MISCELLANEOUS

MON—breaks to monitor. The monitor is the public-domain Supermon by Jim Butterfield.

COLOR border (0-15), screen (0-15), extended color 1 (0-15), extended color 2 (0-15), extended color 3 (0-15)—sets the indicated color registers. All values after border are optional.

SPRITE COMMANDS

SCOLR sprite# (1-8), sprite color (0-15), optional multicolor 1 (0-15), multicolor 2 (0-15)—sets the colors for the indicated sprite. Each sprite can have one color that is independently selectable for each sprite. The last two parameters demonstrated above are optional. They should be included only when it is necessary to set or change the Multicolor mode colors. These two colors are the same for all sprites

and can be seen only when a sprite is put into Medium-resolution mode with the SMED command. Examples:

SCOLR 1, 7—changes sprite 1 to yellow without changing the two current Multicolor mode colors.

SMED 1 ON : SCOLR 1, 2, 4, 5—puts sprite 1 in Medium-resolution mode, then sets the three colors (red, cyan and purple) that can be displayed by sprite 1.

SDUBL sprite# (1-8), x and/or y or OFF—causes the specified sprite to be doubled in size along the specified axes or will restore the sprite to normal size. Some examples:

SDUBL 2, x—doubles the size of sprite 2 along the x-axis.

SDUBL 3, y—doubles sprite 3 along the y-axis.

SDUBL 4, x,y—doubles the size along both axes.

SDUBL 4 OFF—restores sprite 4 to normal size.

SBACK sprite# ON or OFF—causes either the sprite or the background to have display precedence. Examples:

SBACK 8 ON—causes sprite 8 to appear to pass behind objects on the screen. This can be any type of character, hi-res or med-res bitmap, and so on.

SBACK 8 OFF—causes sprite 8 to pass over characters on the screen.

SMED sprite# (1–8), ON or OFF—sets Medium-resolution mode or unset. In sprite High-resolution mode, each sprite can display only one color. This is set with the second parameter of the SCOLR statement. In Med-res or Multicolor mode, two other colors can also be seen at the cost of decreased resolution (that is, the sprites appear coarser). Examples:

SMED 1 ON—sprite 1 will be in Med-res mode.

SMED 1 OFF—puts sprite 1 in Hi-res mode.

SPRITE sprite# (1–8), ON sprite-slot# (0–255) or OFF—turns a sprite on and selects the slot from which the video chip gets its sprite data, or turns a sprite off. The VIC-II chip in your C-64 can only access 16K (16384 bytes) at a time, and, for purposes of displaying sprites, it divides this 16K chunk of memory into 256 smaller chunks of 64 bytes each ($64 \times 256 = 16384$). It is no coincidence that it requires exactly 63 bytes to define a sprite. Below are two examples:

SPRITE 1 ON 13—turns on sprite 1 and tells the video chip to get the data it needs to display the sprite from slot 13.

SPRITE 1 OFF—turns off sprite 1 so it won't be displayed.

SPIC sprite-slot# (0–255), string variable—allows sprite data to be stored in string arrays and stored into a specified sprite slot when needed. SPIC is a mnemonic for sprite-picture. Example:

SPIC 200, WALK\$(7)—stores the first 63 bytes of the string WALK\$(7) into sprite slot 200. If WALK\$(7) is shorter than 63 bytes, only garbage will be stored in slot 200.

SPOS sprite# (1–8), x-position (0–511), y-position (0–255)—moves the specified sprite to the indicated x-, y-position. Location 0,0 is the upper-left corner; 511,255 is the bottom-right corner.

JOY 1 or 2—reads the specified joystick. After execution, three variables contain the information needed to manipulate objects, such as sprites, with a joystick. The variable JX contains the x-increment, and JY contains the y-increment; FB will be non-zero if the fire-button was pressed.

JOY replaces four or five lines of Basic code. The desired increment is set with a Poke. It would have been possible to set the increment at the time the joystick is read, but I thought this would unnecessarily slow things

down (for example, JOY 1, increment (0-255)).

It may be hard to understand how JOY works from this explanation, so try plugging in a joystick and running the following program several times with different increments.

```
10 INPUT "INCREMENT";INC: POKE
   38819,INC
20 JOY 1 : ?"JX="JX"JY="
   JY"FB="FB : GOTO20
```

MAKING LIFE EASY

In addition to added Basic commands, other features have been added to make your programming life easier. Some of the built-in Basic commands have been improved. For instance, Restore will now reset the data pointer to any specified line number, instead of just to the start of the program. (See the demonstration program following this article.)

The List command has been slightly modified so that it does not print READY after execution. The single quote character (') may be substituted for REM, and it is now possible to enter hex numbers by preceding them with a \$ character.

In addition, a method of adding even more commands to Basic has been implemented. Whenever Basic 4.5's execution routine encounters the & char-

acter as the first character of a Basic statement, it performs an indirect jump through a vector at \$0334, address 820. By placing the address of your own routine at \$0334, a whole new set of commands can be implemented.

EDITING FUNCTIONS

The C-64's built-in screen editor has also been enhanced with the following additional functions.

CTRL-B—erases from the cursor position to the start of the cursor line.

CTRL-D—moves the cursor to the lower-left corner of the screen.

CTRL-L—erases to the end of the line.

CTRL-O—echoes screen output to the printer. Everything that is sent to the screen, including what is typed, will be sent to the printer. This allows the C-64 to be used like a typewriter.

If you are going to use your computer like a typewriter, it is best to disable the error-output routine. Otherwise, every time a carriage return is typed on a line with printing on it, the computer will give you a Syntax error. Disabling the error routine requires two Pokes:

```
POKE768,PEEK(770) :
POKE769,PEEK(771)
```


Make sure you do this all on one line. Execute SYS 64738 to reset the computer when you are finished.

Another use for CTRL-O is to obtain program listings. Type CTRL-O LIST CTRL-O to get a listing on the printer. CTRL-O toggles Echo mode on and off.

CTRL-P—dumps whatever is on the screen to the printer.

CTRL-U—erases everything below and to the right of the cursor.

CTRL-W—erases the whole line.

CTRL-X—exits Quote or Insert mode. 

Graph Maker 64

This program allows you to create and save colorful vertical bar graphs, and to print them if you wish. It also includes two routines that let you load your graphs into other programs.

By Doug Smoak

RUN It Right

*C-64; C-128 (in C-64 mode)
1541 disk drive; 1525 printer*

Graph Maker draws vertical bar graphs on your screen, then allows you to add titles and text and to edit the screen. You can then save your graph to disk and print out a hard copy. Once saved, you can reload the screens to edit or print out again.

SETTING UP THE GRAPH

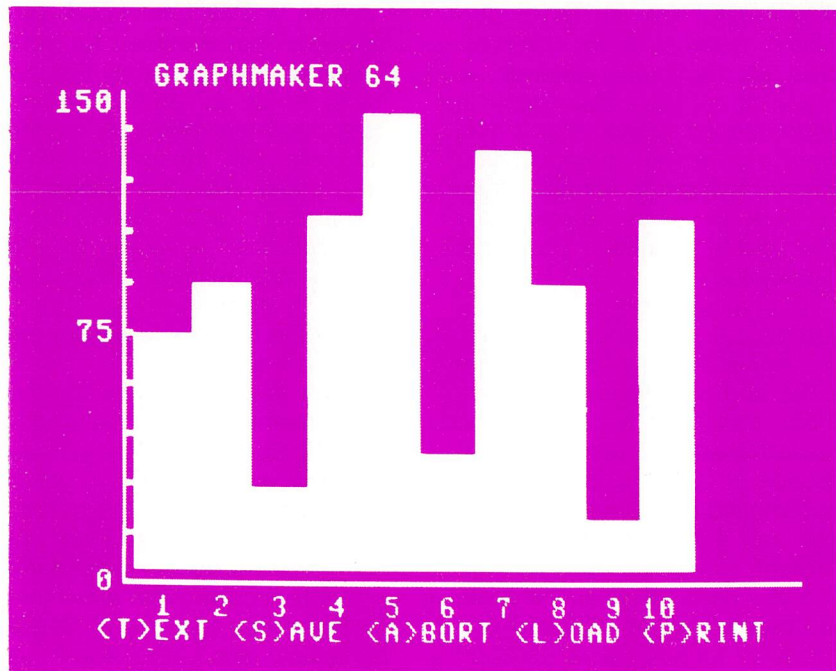
When you run the program, you'll be prompted for bar parameters of the graph. You must first give the maximum vertical scale. This should be at least the size of the highest value to be graphed.

Occasionally, you might have

one value that greatly exceeds the rest of the bars. To avoid a disproportionate graph, you should enter a value closer to the second highest bar. In this case, the largest bar will still appear, reaching to the top of the screen. You can then use the Text mode to enter that highest bar's actual value.

The second prompt will request the number of vertical bars you want on the screen. You may have from two to 36. I chose 36 as the maximum because it is more evenly divisible by the most likely charted items, such as 12 months (up to three years' worth).

Next, you will be prompted to label each of the bars and told how many characters each title can possess. If you want only numbers beneath each bar, just hit the return key, and Graph



Maker will automatically enter the number for that bar as its title.

After having set the maximum bar height, the number of bars and their labels, the final step will be to enter the values for each bar. You will be prompted for the value to be graphed, with the title after the number. These values must be entered carefully to avoid having to redo all of the input.

After all the data has been entered, the graphing begins, tak-

ing only a few seconds for even a 36-bar chart. Then, at the bottom of the screen, you will see a flashing prompt showing the options available: Text, Save, Abort, Load and Print.

If you hit A for Abort, the program will rerun from the beginning and wipe out what has been done up to that point.

THE PROGRAM'S OPTIONS

Text mode will give you a flashing cursor that you can

move about the screen to add titles or notes or to edit bar titles. Just use the cursor controls to move about and then type in your desired characters. If you want a reversed character, you must first type it in normally; then go back and press the return key over each character you want highlighted.

To change colors in Text mode, just do it as you normally would, by simultaneously pressing the CTRL and color keys or the Commodore and color keys. When you have finished with Text mode, you escape to Command mode by pushing the pound key (£). Then you will again get the flashing prompt.

If you hit S for Save, the flashing prompt will be replaced with a prompt for a filename. To abort this option, hit the return key without entering a name. After entering the filename, the drive should come on and two saves will be made.

The first file is the screen memory, saved right off the screen as a program file. The second (saved as filename.C) is the screen-color memory, saved right out of memory as a second program file.

When you hit L for Load, you will again be prompted for your filename. You enter only the filename for the screen file; the program itself will then look for the color file with the same name. You could use this option to make rough drafts, saving them and then later reloading to add text before resaving final versions. To abort the Load option, just hit the return key without entering a name.

Don't save graphs under the same name, or you'll get a disk error. In the case of any Load or Save errors, you will get a flashing message on the bottom line of the screen and an opportunity to redo the procedure.

If you choose P for a printout of the screen, you must have a printer/interface combination that will support the 64's keyboard graphics; otherwise the printout will not be usable. Note that the printout uses double-width characters to make a chart that is 80 columns wide. If you want smaller charts (40 columns), then change CHR\$(14) in line 1470 (in the printout routine) to CHR\$(15). ■

Don't Forget!

Here's the perfect program for people with a busy schedule and a bad memory. It lets you create an appointment file and has a built-in calendar as well.

By Richard Lovett

RUN It Right

*Commodore 64
Printer (optional)*

Instant Memo allows you to enter up to three reminder memos for any day of the year, review or change them, and, if you have a printer, make a hard copy of one or more months' worth of entries.

The program can also display an accurate calendar for any month between the years 1700 and 3099. Any day for which you've entered a memo will be highlighted in reverse video on the calendar, and you can print a hard copy of the calendar itself.

GETTING STARTED

When you run Instant Memo, you will first see an introductory menu allowing you to load an ex-

isting file from disk or tape, create a new file or simply view a month's calendar. If you choose the calendar option, you will be returned to this menu after viewing the desired month.


Selecting the "new file" option sends you to the main Input routine. Here you specify a day, and then view, enter or delete any desired memos for that date. (Memos can be up to 77 characters long, although they will display more neatly if kept under 40 characters. Don't use any commas, colons, semicolons or quote marks.) To select a day, you first enter the month as a number between 1 and 12, then the date and year. Use all four digits of the year.

Actually, specifying the year does not prevent a memo entered for, say, July 4, 1984, from also being displayed if you call up July 4 of some other year.

AUGUST 1985						
SUN	MON	TUE	WED	THU	FRI	SAT
				1	2	3
4	5	6	7	8	9	10
11	12	13	14	15	16	17
18	19	20	21	22	23	24
25	26	27	28	29	30	31
PRESS RETURN FOR MENU						
PRESS F7 FOR SCREEN DUMP						

Making each date of several years entirely separate would have required dimensioning the arrays in line 10 several times larger, thus quickly exhausting the computer's memory. Putting an "84," "85" or other designation at the end of entries from different years is an easy way to overcome any confusion. Entering the year *does* govern whether or

not you can enter or view a memo for February 29, which only occurs in leap years.

The main menu, accessible from most other modes of the program, includes options to view a month's entries on the screen, view more calendar pages or save the file to tape or disk. 

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The programs in ReRUN are taken directly from listings prepared to accompany articles in *RUN* magazine. They will not run under all system configurations. Use the RUN It Right information included with each article as your guide.

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